MHC-EX100AV

SERVICE MANUAL

AEP Model
E Model

- MHC-EX100AV is composed of following models.
  As for the service manual, it is issued for each component model, then, please refer to it.

COMPONENTS MODEL NAME FOR MHC-EX100AV

	MHC-EX100AV				
	AEP	G	IT	SP	HK
AMPLIFIER	TA-EX100				
CD PLAYER	CDP-EX100				
TUNER	ST-EX100				
CASSETTE DECK	TC-EX100				
FRONT SPEAKER	SA-EX200				
CENTER SPEAKER	SS-CN14				
REAR SPEAKER	SS-SR12				

- Abbreviation G : German IT : Italian
  SP : Singapore HK : Hong Kong

SPECIFICATIONS

General

Power requirements
220-230V AC, 50/60Hz (AEP, G, IT model)
110-120V or 220-240V AC Adjustable, 50/60Hz (SP, HK model)
Power consumption
220W (Active speakers not included)

Supplied accessories

AM loop aerial (1)
Remote RM-SE10AV (1)
Sony SUM-3 (NS) batteries (2)
FM lead aerial (1)
Flat cord (1)
Audio cords (4)
Speaker connecting cord
Feet for center speaker (4)

Design and specifications are subject to change without notice.

MINI Hi-Fi COMPONENT SYSTEM

SONY®

PARTS LIST

NOTE :
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- Abbreviation
  - G : German model
  - IT : Italian model
  - SP : Singapore model
  - HK : Hong Kong model

	Part No.	Description	Remark
		ACCESSORIES & PACKING MATERIALS	
		**********	
	1-473-569-11	COMMANDER, STANDARD (RM-SE10AV)	
	1-501-659-41	ANTENNA (FM) (SP, HK)	
	1-501-721-11	ANTENNA (LOOP)	
	1-501-807-11	ANTENNA (FM) (AEP, G, IT)	
	1-558-271-11	CORD, CONNECTION (AUDIO 108cm)	
⚠	1-765-293-11	CORD, POWER (SA)	
	1-769-170-11	CORD (WITH CONNECTOR) (7P) (TA-ST-TC-CDP)	
	1-769-433-11	CORD, SPEAKER (SS) (10m)	
	1-769-433-21	CORD, SPEAKER (SS) (2.5m)	
	1-775-512-21	CORD, SPEAKER CONNECTION (TA-SA) (2m)	
	3-856-114-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH, PORTUGUESE) (AEP)	
	3-856-114-21	MANUAL, INSTRUCTION (GERMAN, DUTCH, ITALIAN, SWEDISH) (AEP, G, IT)	
	3-856-114-31	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH, CHINESE) (SP, HK)	
*	3-933-134-01	CUSHION (LOWER) (TC)	
*	3-933-164-01	CUSHION (UPPER) (TC)	
	4-972-322-01	FOOT (Y) (SS)	
*	4-972-989-01	CUSHION (SS)	
*	4-979-172-01	CUSHION (UPPER) (SA)	
*	4-979-173-01	CUSHION (LOWER) (SA)	
*	4-980-537-01	CUSHION (UPPER) (TA)	
*	4-980-538-01	CUSHION (LOWER) (TA)	
*	4-980-539-01	CUSHION (UPPER) (ST)	
*	4-980-540-01	CUSHION (LOWER) (ST)	
*	4-980-541-01	CUSHION (UPPER) (CDP)	
*	4-980-542-01	CUSHION (LOWER) (CDP)	
	4-980-737-01	LID, BATTERY CASE (for RM-SE10AV)	
*	4-982-100-01	INDIVIDUAL CARTON (ST-CDP) (AEP, G, IT)	
*	4-982-441-01	INDIVIDUAL CARTON (SA) (AEP, G, IT)	
*	4-982-442-01	INDIVIDUAL CARTON (SA) (SP, HK)	
*	4-982-678-01	INDIVIDUAL CARTON (TA-TC-SS)	
*	4-983-479-01	INDIVIDUAL CARTON (TA-ST-TC-CDP-SS) (SP, HK)	

9-960-634-11

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Home A&V Products Company

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TA-EX100

SERVICE MANUAL

AEP Model
E Model

TA-EX100 is the amplifier section in MHC-EX100AV.

SPECIFICATIONS

* Manufactured under license from Dolby Laboratories Licensing Corporation.
DOLBY, the double-D symbol ◻◻ and "PRO LOGIC" are trademarks of Dolby Laboratories Licensing Corporation.

DIN power output
- FRONT: 50 W + 50 W (6 ohms, at 1 kHz, DIN)
- CENTER: 25 W (6 ohms, at 1 kHz, DIN)
- REAR: 15 W + 15 W (8 ohms, at 1 kHz, DIN)

Continuous RMS power output
- FRONT: 65 W + 65 W (6 ohms, at 1 kHz, 10% THD)
- CENTER: 35 W (6 ohms, at 1 kHz, 10% THD)
- REAR: 20 W + 20 W (8 ohms, at 1 kHz, 10% THD)

Music power output
- FRONT: 95 W + 95 W (6 ohms, at 1 kHz, 10% THD)
- CENTER: 45 W (6 ohms, at 1 kHz, 10% THD)
- REAR: 25 W + 25 W (8 ohms, at 1 kHz, 10% THD)

Input	Jack type	Sensitivity	Impedance
CD	Phono	450 mV	47 kilohms
MD	Phono	450 mV	47 kilohms
TUNER	Phono	250 mV	47 kilohms
VIDEO1	Phono	250 mV	47 kilohms
VIDEO2	Phono	250 mV	47 kilohms
TAPE	Phono	250 mV	47 kilohms

Output	Jack type	Voltage	Impedance
MD	Phono	250 mV	1 kilohm
VIDEO1	Phono	250 mV	1 kilohm
TAPE	Phono	250 mV	1 kilohm
PHONES	Stereo phone	—	Accepts headphones of 8 ohms or more

MONITOR OUT (phono jack):
1 Vp-p/75 ohms
FRONT SPEAKER:
accepts speakers of 6 to 16 ohms
CENTER SPEAKER:
accepts speakers of 6 to 16 ohms
REAR SPEAKER:
accepts speakers of 8 to 16 ohms

Dimensions
Approx. 280 x 125 x 292 mm (11 1/8 x 5 x 11 1/2 in) (w/h/d) incl. projecting parts and controls

Mass: Approx. 7.4 kg (16 lb 6 oz)

General

Power requirements
AEP,German,Italian models:
220-230V AC, 50/60Hz
Other models:
110-120V or 220V-240V AC adjustable, 50/60Hz

Power consumption
220W (active speakers not included)

Design and specificatuons aer subject to change without notice.

– Continued on next page –

MICROFILM

AV AMPLIFIER

SONY®

[TEST MODE]

Press SYSTEM POWER button, turn the power on and press DISPLAY and AUDIO buttons for two seconds at the same time to enter in the test mode.

See the list below for check of mode and display.

Button	Display(mode)
M.MENU	PRO-LOGIC ON/OFF & MODE setting. The display will change every pressing the button. PHANTOM(ON)→NORMAL→WIDE→3CH LOGIC→THROUGH(OFF)
P.FILE	7kHz LPF ON/OFF
PRO LOGIC	B DECODER ON/OFF
M.SOURCE	LEFT (Lch test tone output)
PRESENSE	RIGHT (Rch test tone output)
MEMORY	CENTER (Cch test tone output)
NAME	REAR (Sch test tone output)
KARAOKE PON/MPX	FL & LED all light up

Note:

Turn off the test tone with pressing the M.MENU button to change the mode.

Press the corresponded button to each channel to fix each channel of the test tone after the M.SOURCE button.

Press the SYSTEM POWER button to cancel the test mode.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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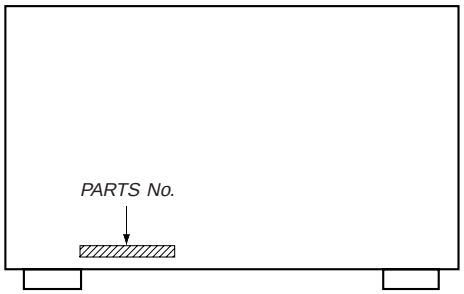
MODEL IDENTIFICATION

– BACK PANEL –

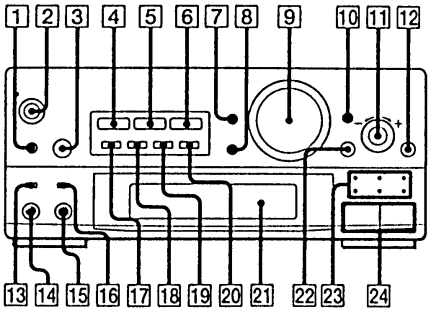


MODEL	PARTS No.
AEP model	4-978-785-0☐
German model	
Italian model	
Singapore model	4-978-785-1☐
Hong Kong model	4-978-785-2☐

SECTION 1
GENERAL

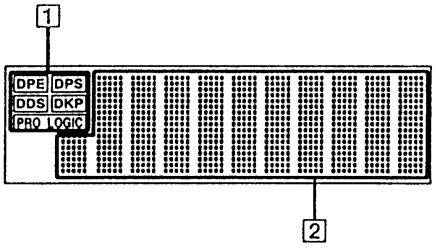
This section is extracted from instruction manual.

Front Panel



1 Remote sensor
2 SYSTEM POWER switch and ON/STANDBY indicator (8)
The indicator remains lit as long as the AC power cord is connected to a wall outlet.
3 MIC LEVEL control (33)
4 M. MENU button (21)
5 P FILE button (26)
6 PRO LOGIC button (29, 30)
7 SOURCE DIRECT button* (21, 30)
8 MUTING button* (21)
9 VOLUME control (6, 8, 21, 29, 31, 33)
10 CANCEL button (22)
11 MULTI CONTROLLER* (21, 23 – 27, 29)
12 ENTER button (21, 29)
13 DISPLAY button (22)
14 PHONES jack (21, 34)
15 MIX MIC jack (33, 34)
16 KARAOKE PON/MPX button* (33)
17 M. EFFECT button* (22)
18 PRESENCE button* (24)
19 MEMORY button (26)
20 NAME button (27)
21 Display window (21 – 26)
22 NEXT button (23, 25, 26, 29)
23 Indicators of the video/audio sources
VIDEO 1 (29)
VIDEO 2 (29)
TAPE
MD
CD (17, 20)
TUNER (20)
24 FUNCTION buttons (17, 20, 29, 30, 33, 34)
VIDEO (29, 33, 34)
AUDIO (17, 20, 30, 33, 34)

Display Window

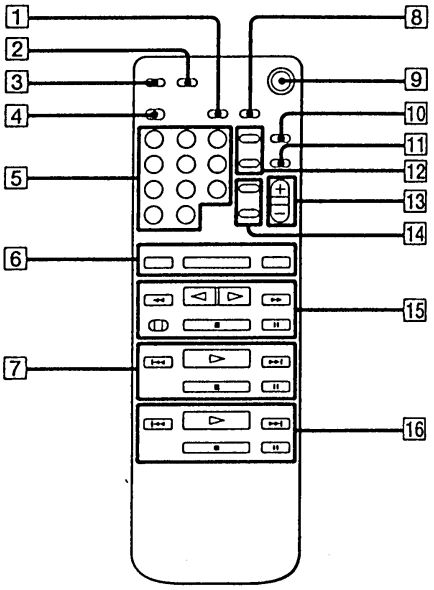


1 Audio emphasis indication (23 – 25)
2 Amplifier indication (21 – 26)

Remote

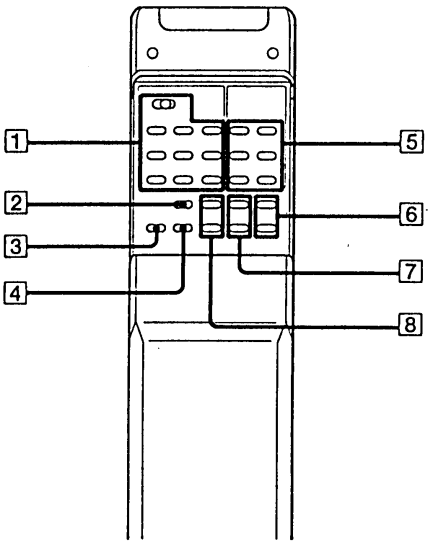
For further operation, refer to the pages in parentheses.

Front panel



1 SOURCE DIRECT button (21, 30)
2 SLEEP button (31)
3 MUTING button (21)
4 CD/AMP/MD selector (9)
5 CD/AMP/MD numeric buttons (9)
6 Tuner operating buttons (11)
BAND button
+/– buttons
7 CD operating buttons
▷ (play) (8)
II (pause) (8)
■ (stop) (8)
I◀◀ / ▶▶I (manual search) (9)
8 PRO LOGIC button (29, 30)
9 SYSTEM POWER switch (8)
10 AUDIO FUNCTION button (17, 20, 30, 33, 34)
11 VIDEO FUNCTION button (29, 33, 34)
12 M.MENU buttons (22)
13 VOLUME (+/–) buttons (8, 21, 29, 31, 33)
14 P FILE buttons (26)
15 Tape operating buttons (15)
◁ (reverse side play)
▷ (front side play)
◀◀ (fast leftward and AMS**)
▶▶ (fast rightward and AMS**)
■ (stop)
II (pause)
DECK A/DECK B switch
**AMS: Automatic Music Sensor
16 MD operating buttons
▷ (play)
II (pause)
■ (stop)
I◀◀ / ▶▶I (manual search)

Rear panel

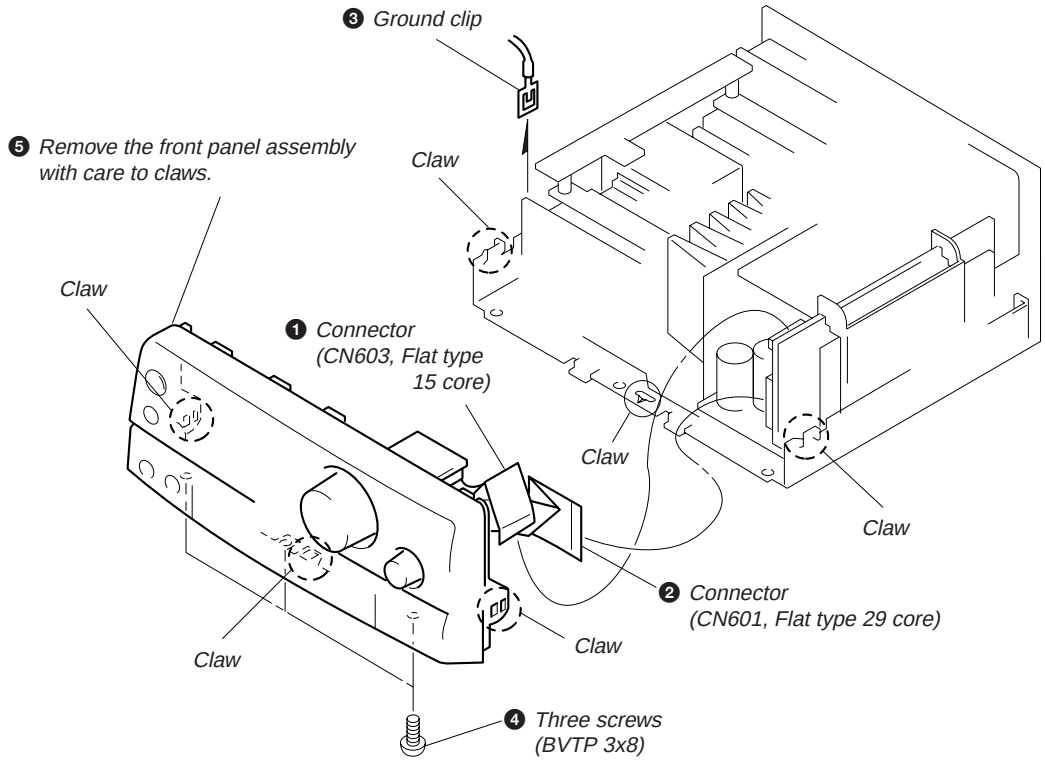


1 VCR operating buttons (29)
2 PRO LOGIC button (29)
3 PRO LOGIC MODE button (29)
4 TEST TONE button (29)
5 TV operating buttons (29)
6 DELAY TIME (+/–) buttons (30)
7 REAR LEVEL (+/–) buttons (30, 36)
8 CENTER LEVEL (+/–) buttons (30, 36)

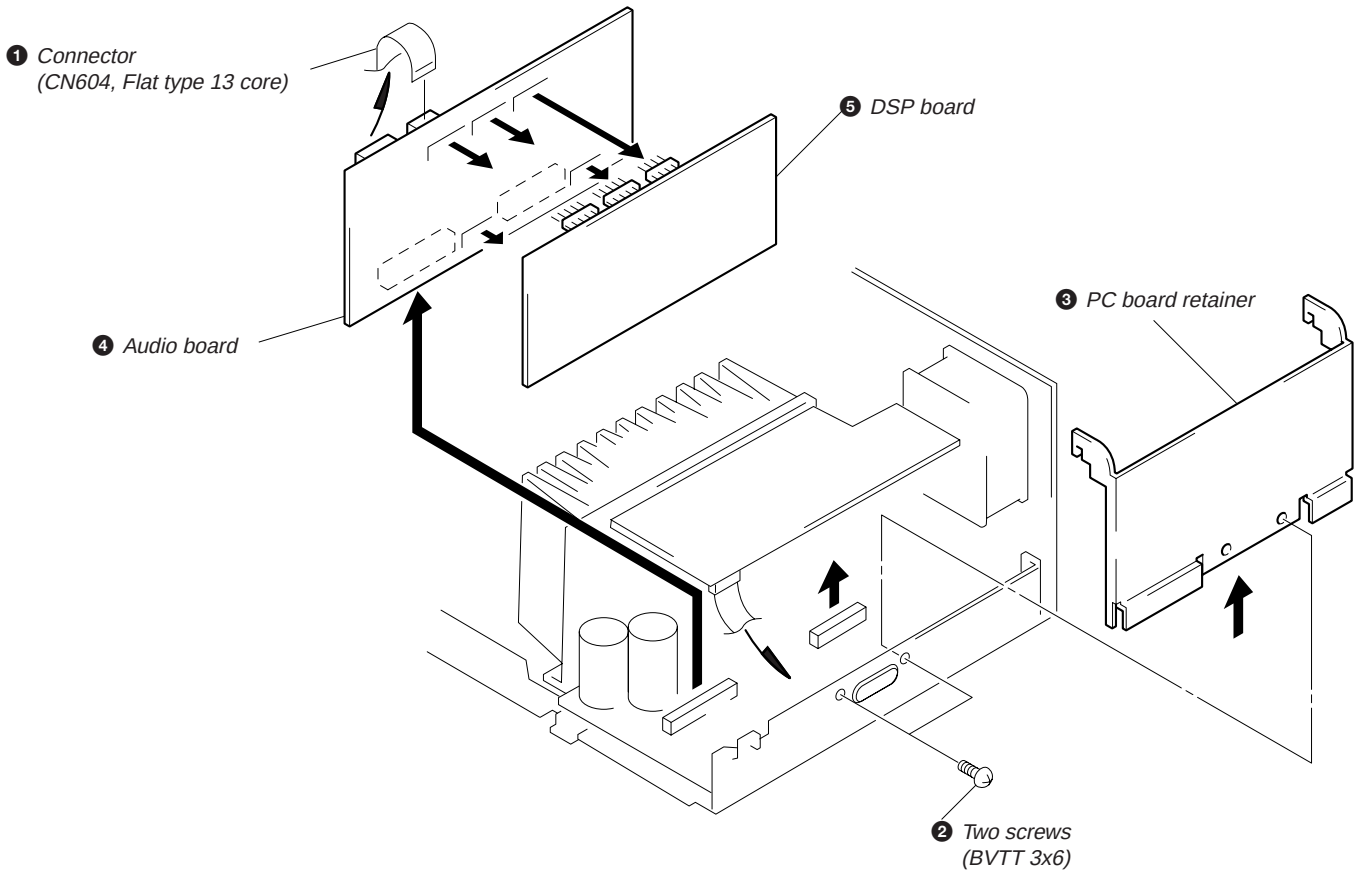
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

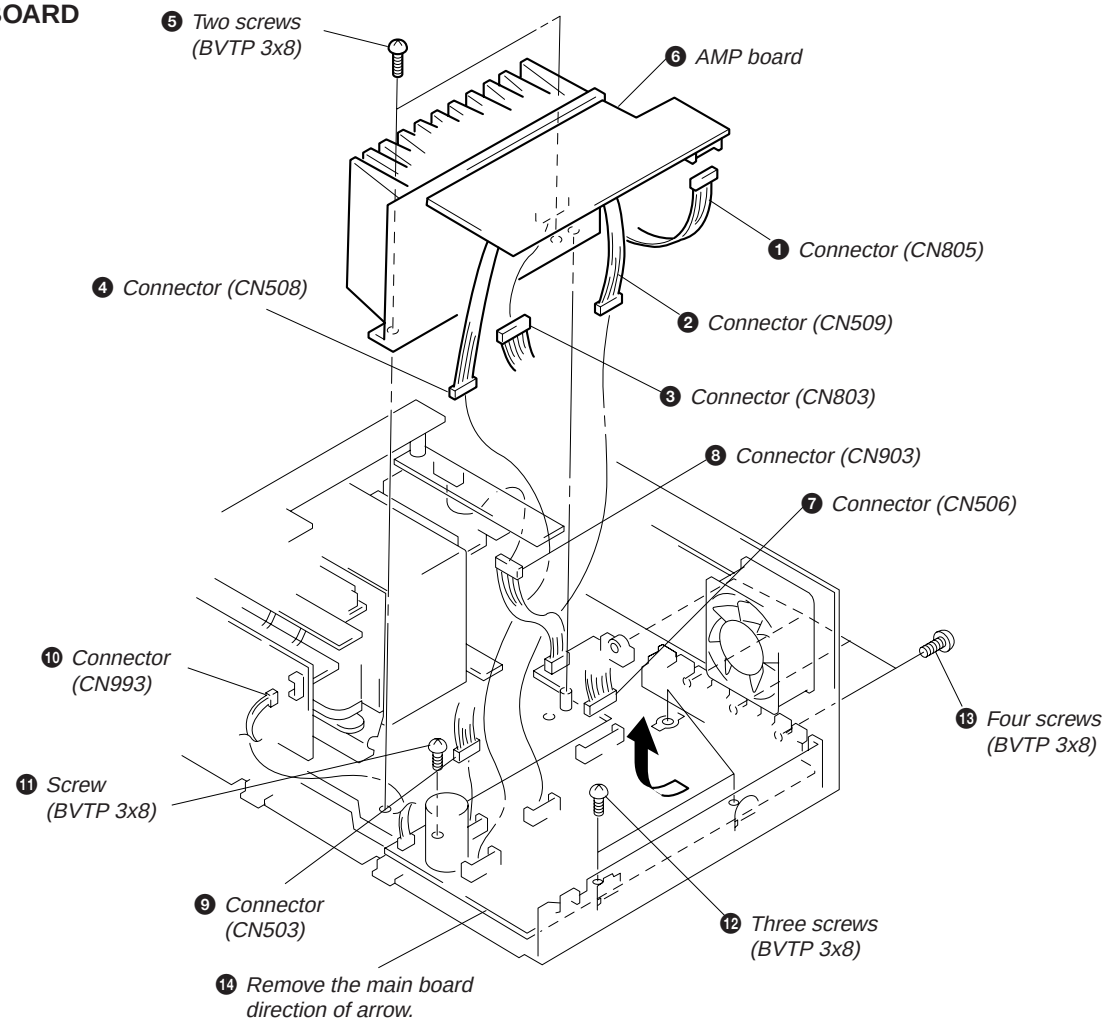
2-1. FRONT PANEL ASSEMBLY



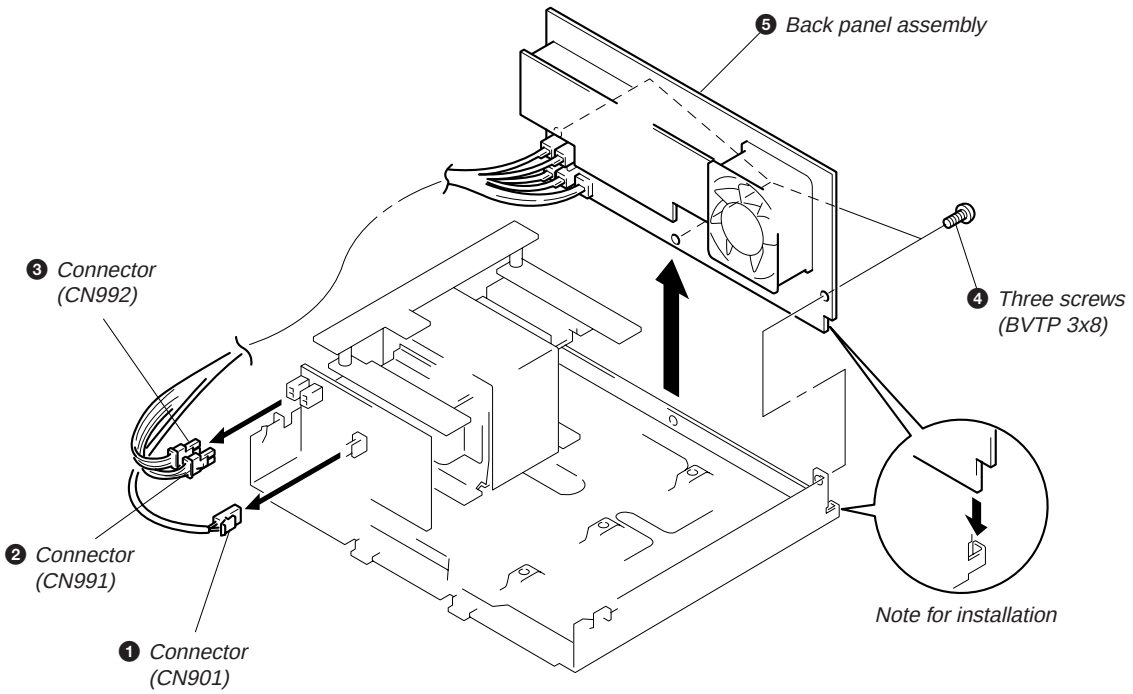
2-2. AUDIO BOARD AND DSP BOARD



2-3. MAIN BOARD

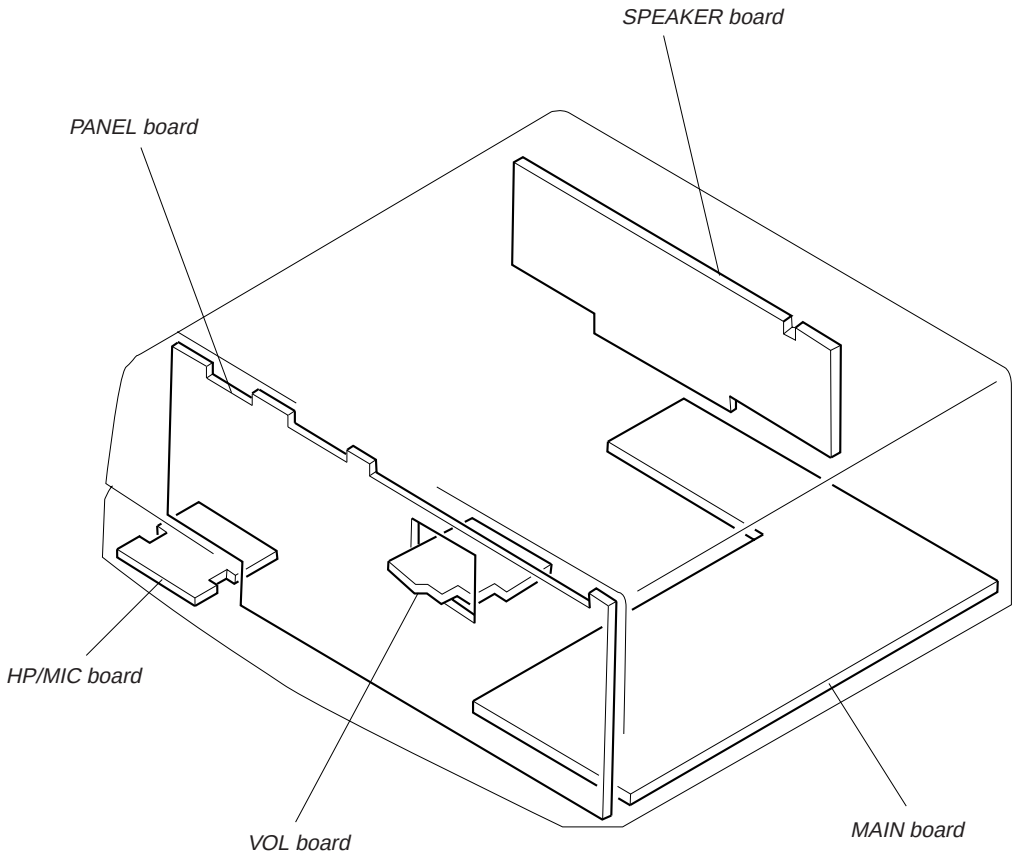


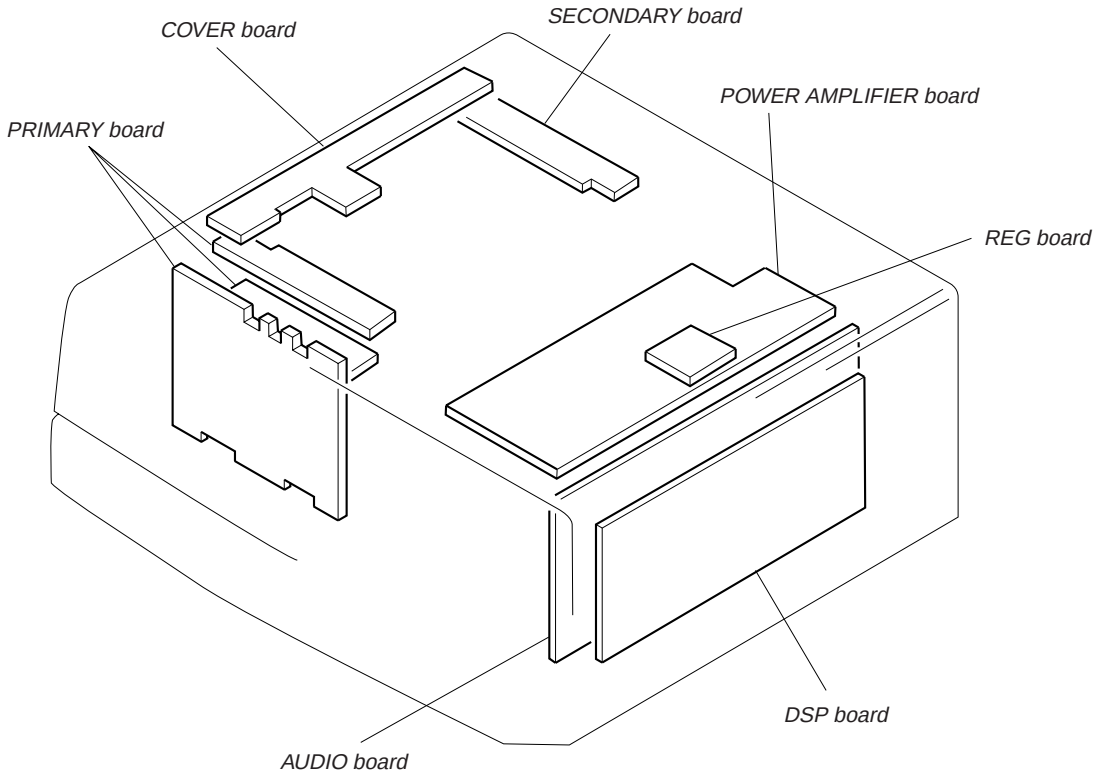
2-4. BACK PANEL ASSEMBLY



SECTION 3
DIAGRAMS

3-1. CIRCUIT BOARDS LOCATION





3-2. IC PIN FUNCTION

• IC601 SYSTEM CONTROL (HD6433927B97F)

Pin No.	Pin Name	I/O	Function
1	VOLUME IN	—	Not used. (Ground)
2 to 4	KEY 0 to KEY 2	I	Key matrix input.
5	AVss	—	Ground
6	TEST	—	Ground
7	X2	—	Not used. (open)
8	X1	—	+5V power supply.
9	Vss	—	Ground
10	OSC 1	I	Clock (10 MHz).
11	OSC 2	O	
12	$\overline{\text{RESET}}$	I	System reset input.
13	$\overline{\text{NMI}}$	I	AC OFF detect.
14	POWER	O	Power relay output.
15	SP RELAY	O	Speaker relay output. (power ON/OFF)
16	PROLOGIC RELAY	O	Speaker relay output. (PROLOGIC ON/OFF)
17	DIRECT	O	Speaker relay. (DIRECT)
18	VOL-UP	O	MIC VOL up/down output.
19	VOL-DOWN	O	
20	LINE MUTE	O	LINE mute output. (power OFF “High”)
21	–20 dB MUTE	O	–20 dB mute output.
22	—	—	Not used. (open)
23	—	—	Not used. (Ground)
24	SIRCS	I	SIRCS signal input
25	AUB IN	I	Audio bus input.
26	AUB OUT	O	Audio bus output.
27 to 31	—	—	Not used. (Ground)
32	$\overline{\text{STB}}$	O	LED strobe output.
33	CLK	O	LED clock output.
34	DATA	O	LED serial data output.
35 to 38	—	—	Not used. (Ground)
39	$\overline{\text{MIC}}$ IN	O	Microphone detect control. (mic on “Low”)
40	$\overline{\text{KARAOKE PON}}$	—	Not used. (Ground)
41 to 46	—	—	Not used. (Ground)
47	A FUNC 0	O	Audio function control output.
48	A FUNC 1	O	
49	A FUNC 2	O	
50	V FUNC 0	O	Video function control output.
51	V FUNC 1	O	
52	2DB	O	ATT control.
53	4DB	O	
54	8DB	O	

Pin No.	Pin Name	I/O	Function
55	—	—	Not used. (Ground)
56	$\overline{CL}$	O	FL clear output. IC701, 702 control.
57	DATA	O	FL data output. IC701, 702 control.
58	LATCH	O	FL latch output. IC701, 702 control.
59	CLK	O	FL clock output. IC701, 702 control.
60	DATA OUT	O	DSP data output. IC202 control.
61	DATA IN	I	DSP data input. IC202 control.
62	CLK	O	DSP clock output. IC202 control.
63	Vcc	—	+5V power supply.
64	LATCH	O	DSP latch output.
65	NSQCT	O	DSP test data output.
66	READY	I	READY signal input from DSP.
67	INIT	O	DA/AD/DSP IC initial output.
68	ATT	O	DA ATT output.
69	CLK	O	DA clock output.
70	DR LATCH	O	DA rear/center latch output.
71	DF LATCH	O	DA front latch output.
72	AVcc	—	+5V power supply.
73 to 78	—	—	Not used. (Ground)
79	JOG 1	I	JOG A input.
80	JOG 2	I	JOG B input.

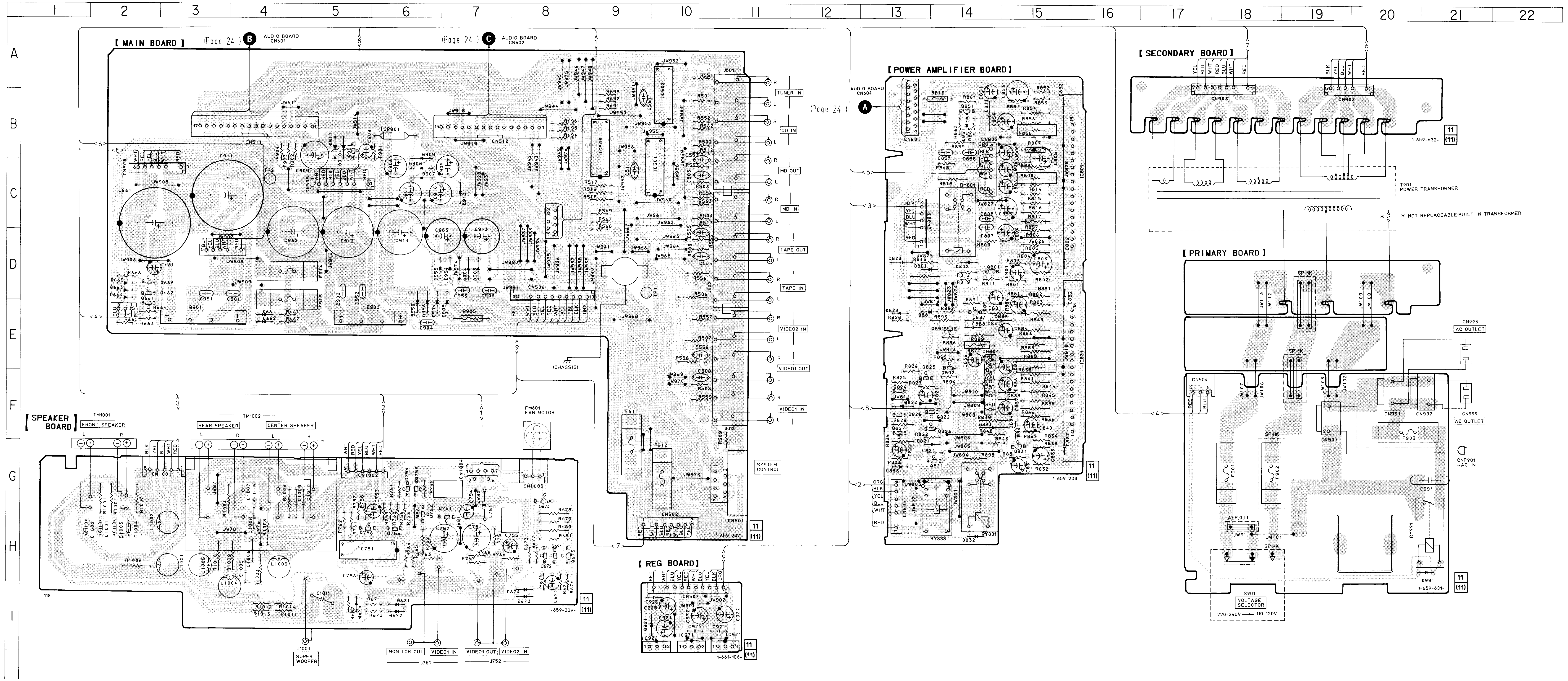
• Abbreviation
FL : Fluorescent Indicator Tube

3-3. PRINTED WIRING BOARD — MAIN SECTION —

• See page 6 for Circuit Boards Location.

• **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D661	E-4	IC501	C-10
D662	E-4	IC502	B-10
D663	D-2	IC503	B-9
D664	D-2	IC751	H-5
D665	D-2	IC801	C-16
D671	I-6	IC831	E-16
D672	I-6	IC921	I-11
D673	I-8	IC922	I-10
D674	I-8	IC971	I-10
D675	I-5		
D801	D-13	Q661	E-2
D802	D-14	Q662	D-2
D821	F-14	Q663	D-2
D822	F-13	Q671	H-8
D823	E-13	Q672	H-8
D831	F-14	Q673	H-8
D832	H-14	Q751	H-7
D833	G-13	Q752	H-6
D851	B-14	Q753	G-6
D881	E-13	Q754	G-6
D901	E-3	Q755	H-6
D902	E-5	Q756	H-6
D903	D-7	Q801	D-14
D904	D-7	Q821	G-14
D905	E-7	Q822	F-14
D906	E-6	Q823	F-14
D907	C-6	Q824	F-13
D908	C-6	Q825	F-13
D909	B-6	Q826	F-13
D910	B-5	Q827	F-13
D911	B-5	Q831	G-15
D912	C-7	Q851	B-14
D921	I-9	Q881	E-14
D953	D-7	Q891	E-14
D954	D-7	Q892	E-14
D955	E-6	Q901	B-5
D956	E-6		
D991	H-15		

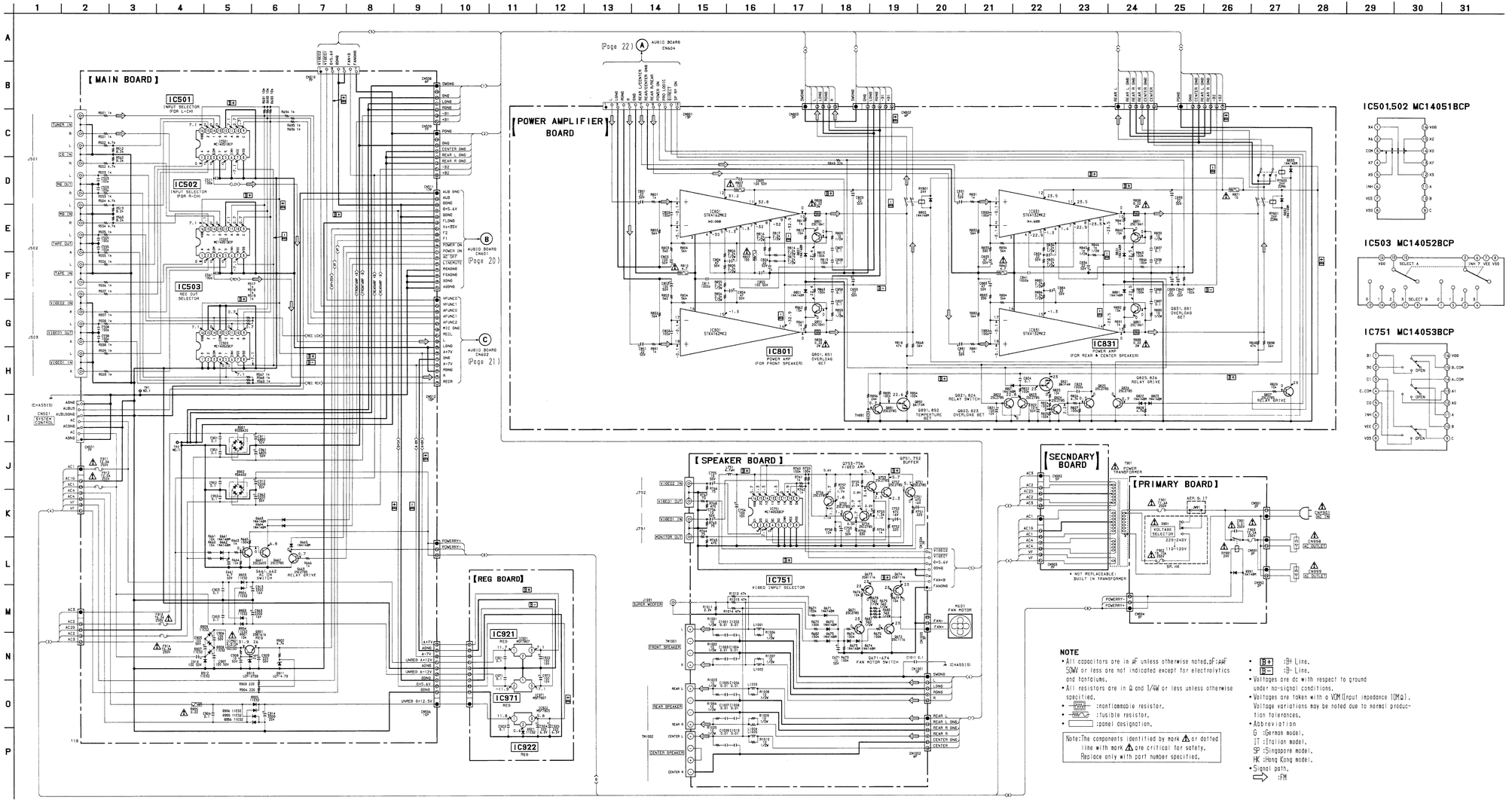


Note:

- o—— : parts extracted from the component side.
- —— : parts extracted from the conductor side.
- ▒ : Pattern from the side which enable seeing.
- Abbreviation
  - G : German model.
  - IT : Italian model.
  - HK : Hong Kong model.
  - SP : Singapore model.

3-4. SCHEMATIC DIAGRAM — MAIN SECTION —

• See page 7 for IC Pin Function. (IC601)



IC501,502 MC14051BCP

IC503 MC14052BCP

IC751 MC14053BCP

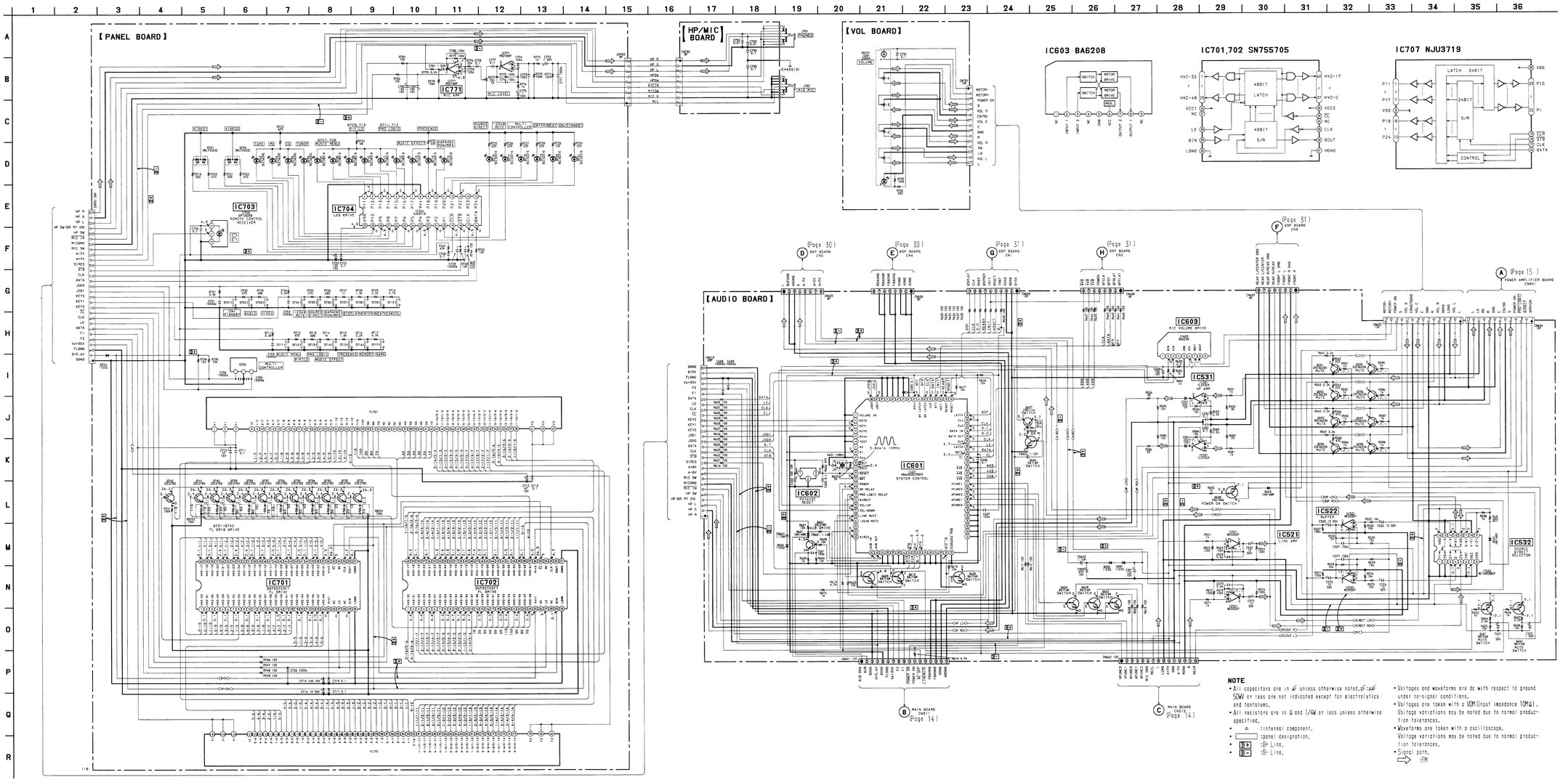
NOTE

- All capacitors are in μF unless otherwise noted. pF: μμF
  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- ⊣⊢ : nonflammable resistor.
- ⊣⊢ : fusible resistor.
- ⊣⊢ : panel designation.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

- ⊣H+⊢ : B+ Line.
- ⊣B−⊢ : B− Line.
- Voltages are dc with respect to ground under no-signal conditions.
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Abbreviation
  G : German model.
  IT : Italian model.
  SP : Singapore model.
  HK : Hong Kong model.
- Signal path.
  ⇨ : FM

3-5. SCHEMATIC DIAGRAM — AUDIO/PANEL SECTION —

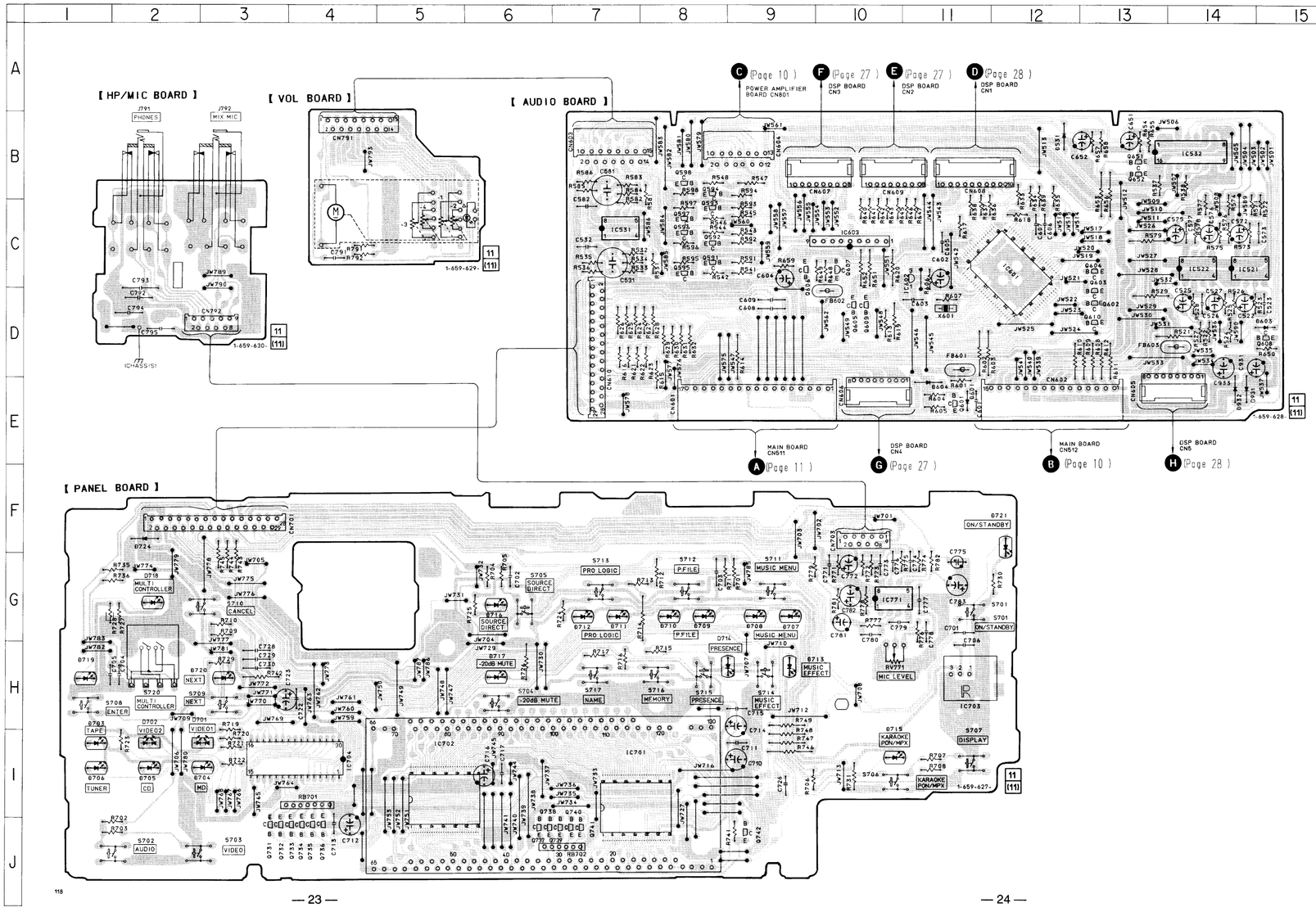


NOTE

- All capacitors are in μF unless otherwise noted. pF: μF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : Internal component.
- ▭ : panel designation.
- B+ : B+ Line.
- B- : B- Line.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path. ⇨ : FM

3-6. PRINTED WIRING BOARD — AUDIO/PANEL SECTION —

• See page 6 for Circuit Boards Location.



• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D531	B-12	IC702	I-5
D601	E-11	IC703	H-11
D603	D-15	IC704	I-4
D604	E-11	IC771	G-10
D701	I-2		
D702	I-2	Q591	C-8
D703	I-1	Q592	C-8
D704	I-2	Q593	C-8
D705	I-2	Q594	C-8
D706	I-1	Q595	C-8
D707	G-9	Q596	C-8
D708	G-9	Q597	C-8
D709	G-8	Q598	B-8
D710	G-8	Q601	E-11
D711	G-7	Q602	D-13
D712	G-7	Q603	D-13
D713	H-9	Q604	D-13
D714	H-8	Q605	D-10
D715	I-10	Q606	C-9
D716	G-6	Q607	C-10
D717	H-6	Q608	D-15
D718	G-2	Q609	D-10
D719	H-1	Q610	D-13
D720	H-3	Q651	B-13
D721	G-12	Q652	B-13
D724	F-2	Q731	J-3
D931	E-14	Q732	J-3
D932	E-14	Q733	J-3
		Q734	J-4
IC521	C-14	Q735	J-4
IC522	C-14	Q736	J-4
IC531	C-7	Q737	J-6
IC532	B-14	Q738	J-6
IC601	D-11	Q739	J-6
IC602	C-12	Q740	J-7
IC603	C-10	Q741	J-7
IC701	I-7	Q742	J-9

Note:

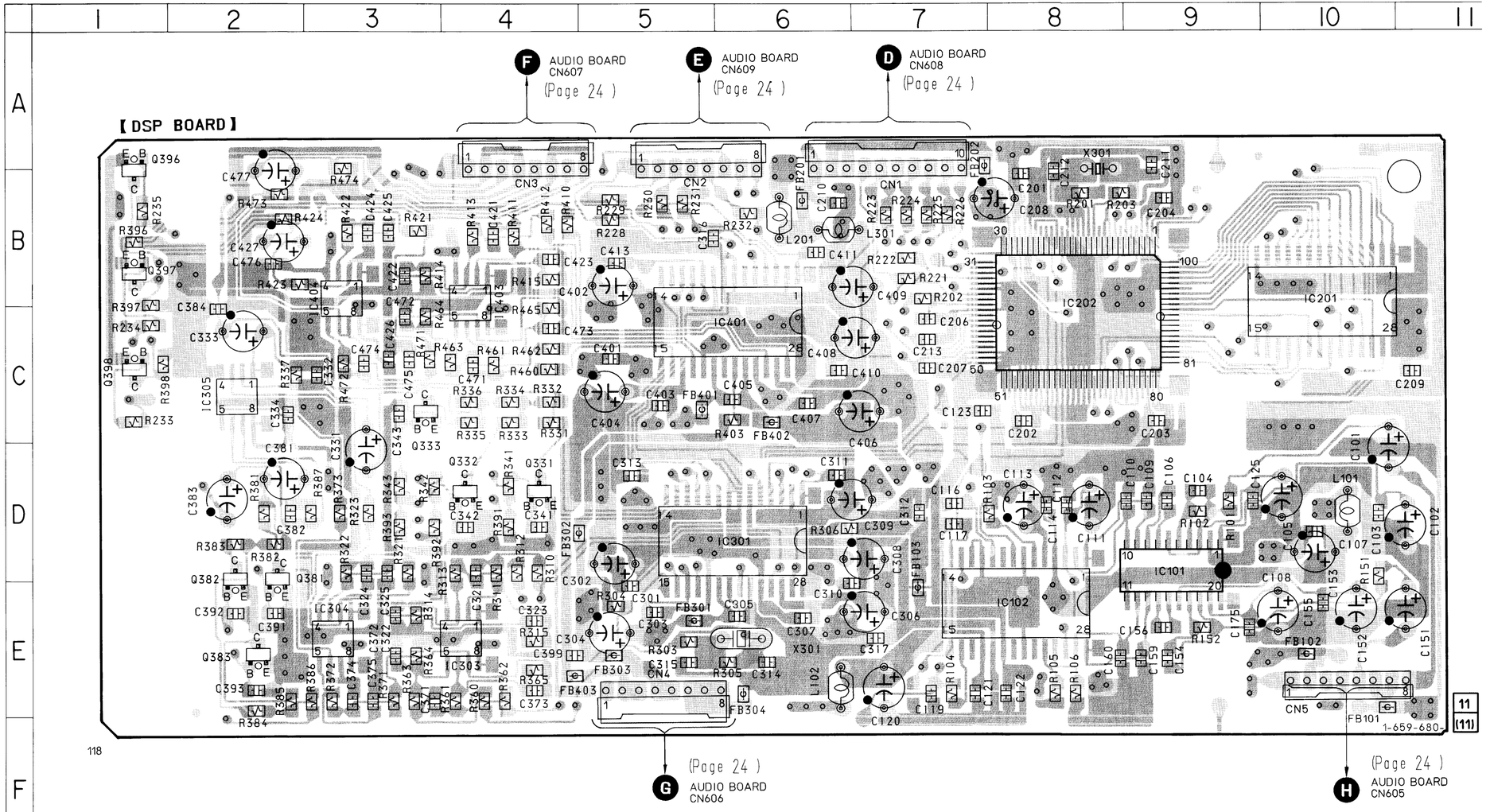
- ⊶—— : parts extracted from the component side.
- —— : parts extracted from the conductor side.
- △ : internal component.
- ▒▒ : Pattern from the side which enable seeing.

3-7. PRINTED WIRING BOARD — DSP SECTION —

• See page 6 for Circuit Boards Location.

• **Semiconductor Location**

Ref. No.	Location
IC101	E-9
IC102	E-8
IC201	C-10
IC202	C-8
IC301	D-6
IC303	E-4
IC304	E-3
IC305	C-2
IC401	C-6
IC403	C-4
IC404	C-3
Q331	D-4
Q332	D-4
Q333	C-3
Q361	E-2
Q382	E-3
Q383	E-2
Q396	A-1
Q397	B-1
Q398	C-1

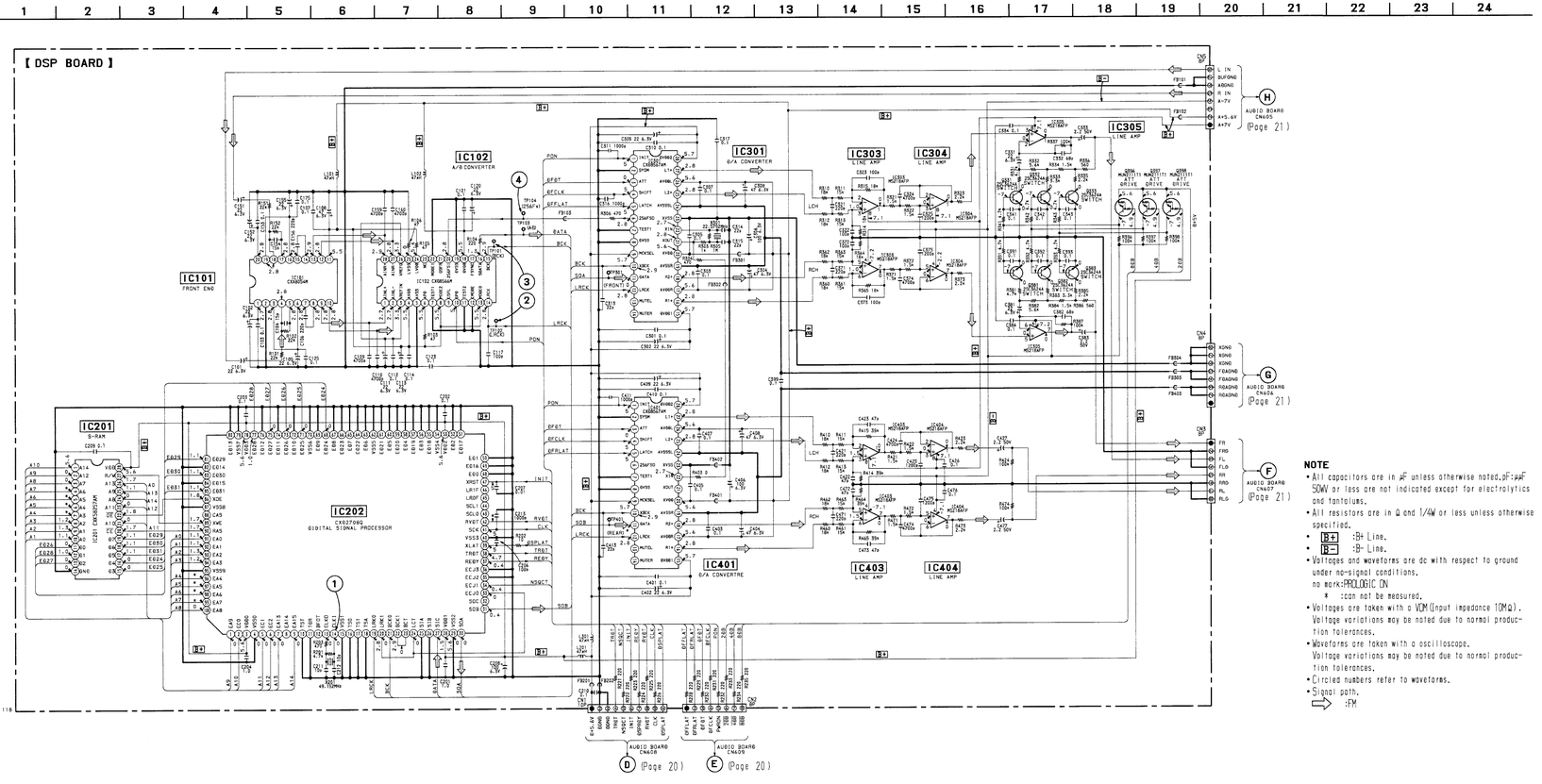


Note:

- ——o——: parts extracted from the component side.
- ——: parts extracted from the conductor side.
- O : Through hole.
- ▒▒: Pattern from the side which enable seeing.
- : Pattern of the rear side.

3-8. SCHEMATIC DIAGRAM — DSP SECTION —

• See page 33 for IC Block Diagrams.

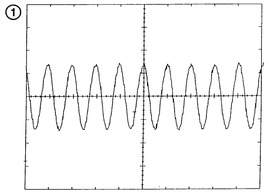


NOTE

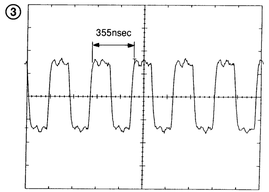
- All capacitors are in μF unless otherwise noted. pF: μF
  50WV or less are not indicated except for electrolytics and tantaliums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- B+ : B+ Line.
- B− : B− Line.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark: PROLOGIC ON
  * : can not be measured.
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : FM

• Waveforms

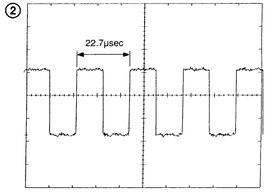
① IC202 ⑭ pin 5.0Vp-p 49.152MHz



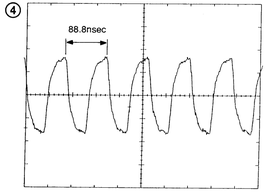
③ IC102 ⑱ pin 6.2Vp-p



② IC102 ⑭ pin 5.77Vp-p

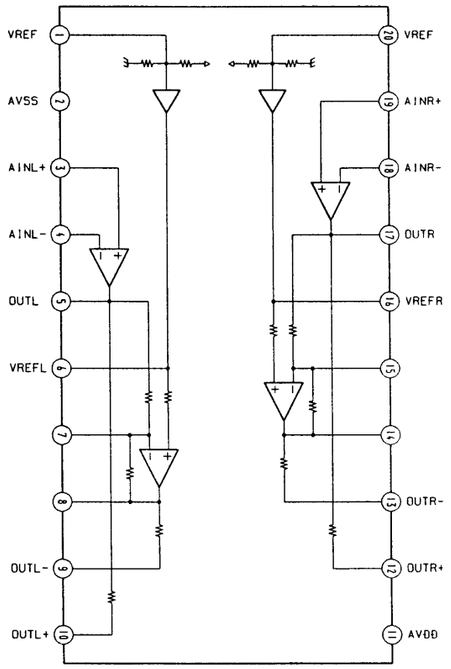


④ IC102 ⑳ pin 6.4Vp-p

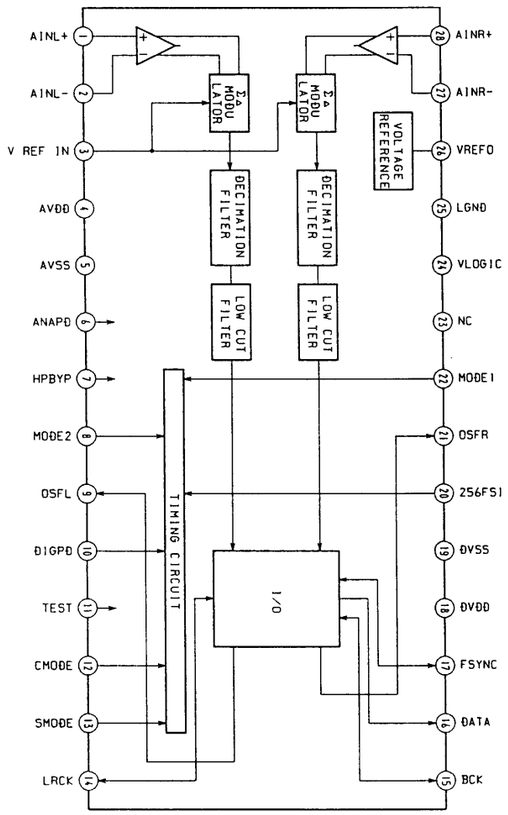


3-9. IC BLOCK DIAGRAMS — DSP SECTION —

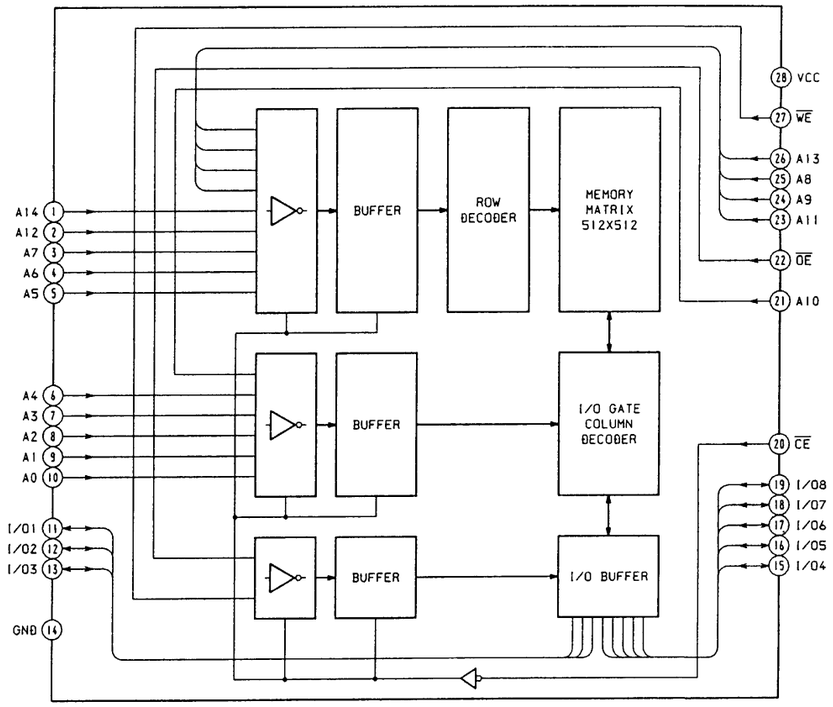
IC101 CXA8054M



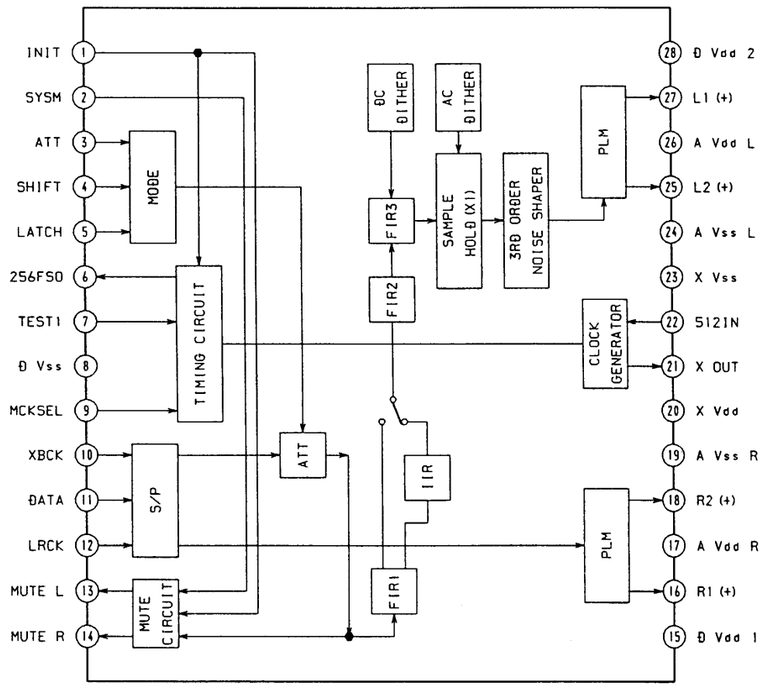
IC102 CXD8566M



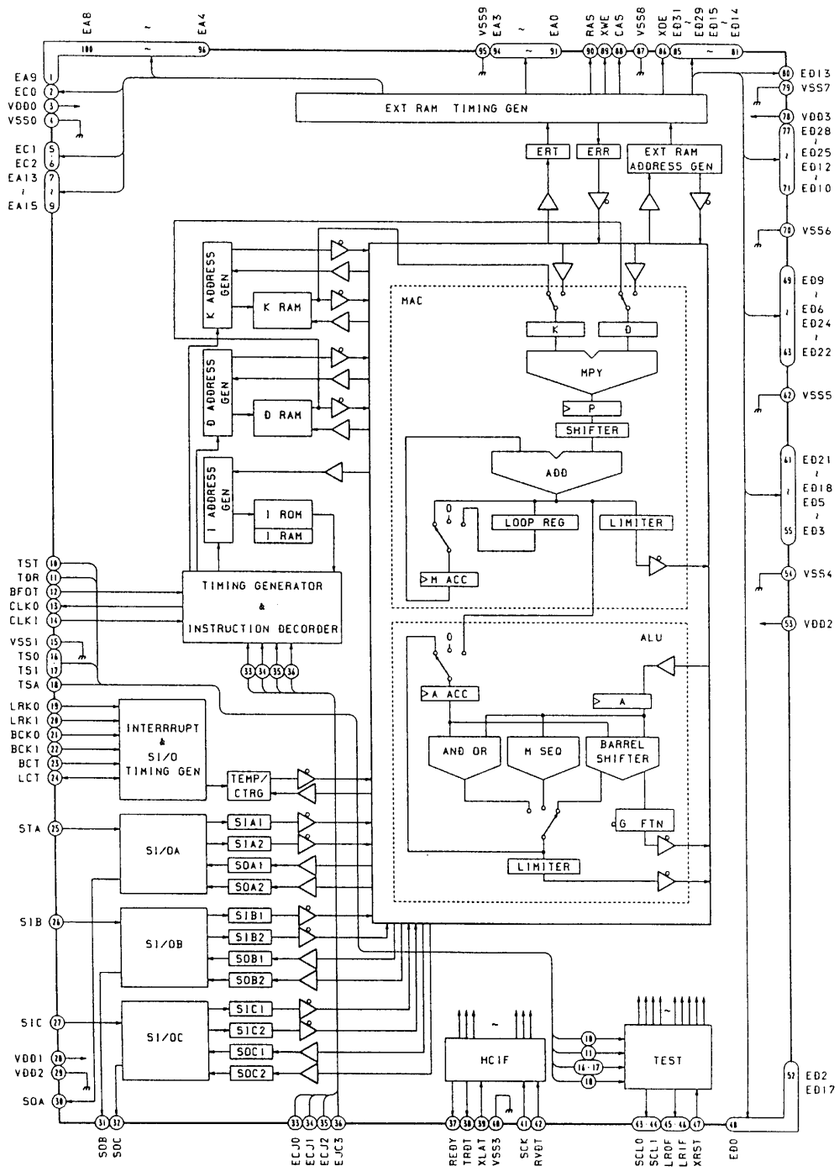
IC201 CXK58257AM



IC301, 401 CXD8567M



IC202 CXD2708Q

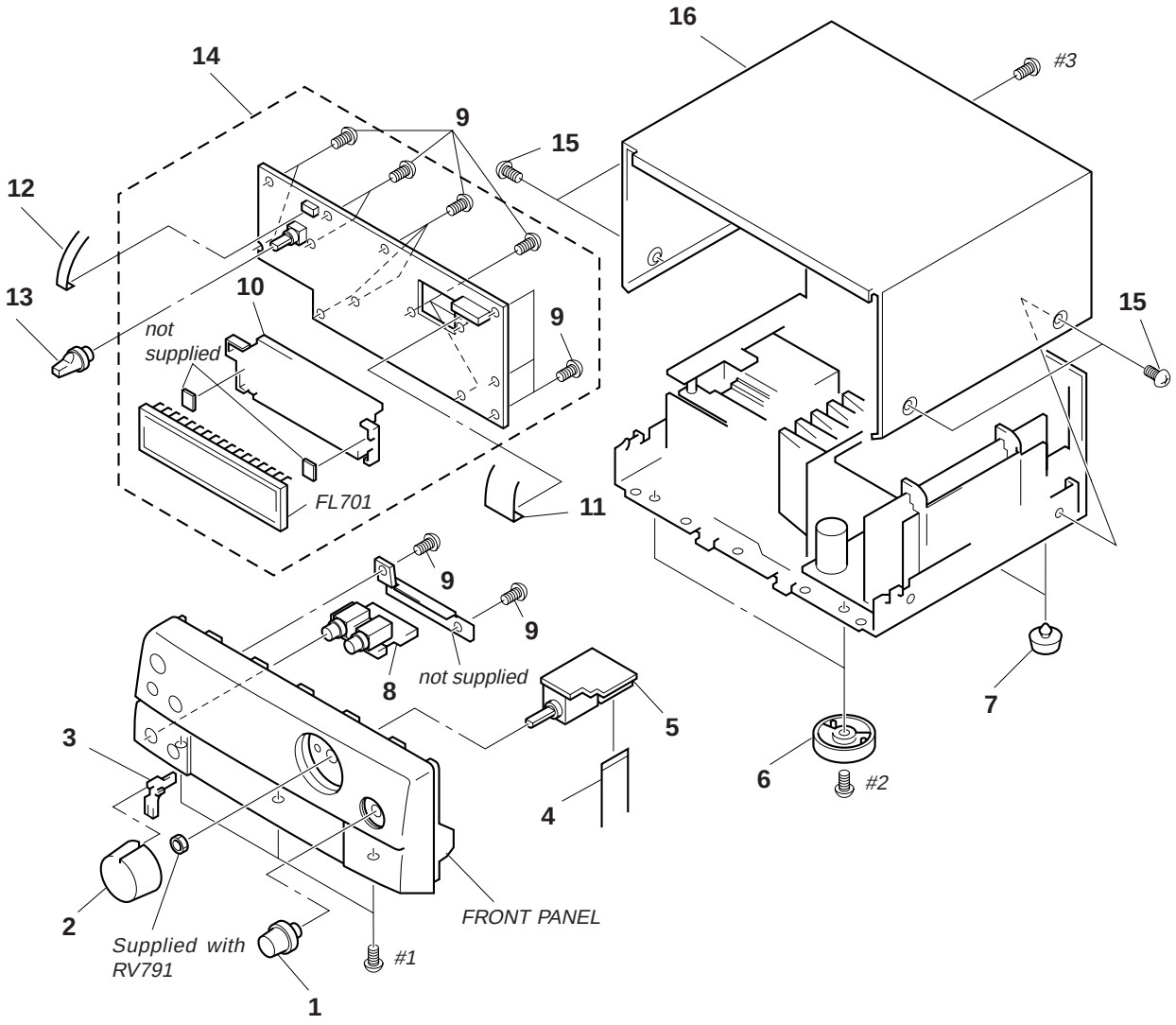


SECTION 4
EXPLODED VIEWS

NOTE:
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation
  G : German model
  IT : Italian model
  HK : Hong Kong model
  SP : Singapore model

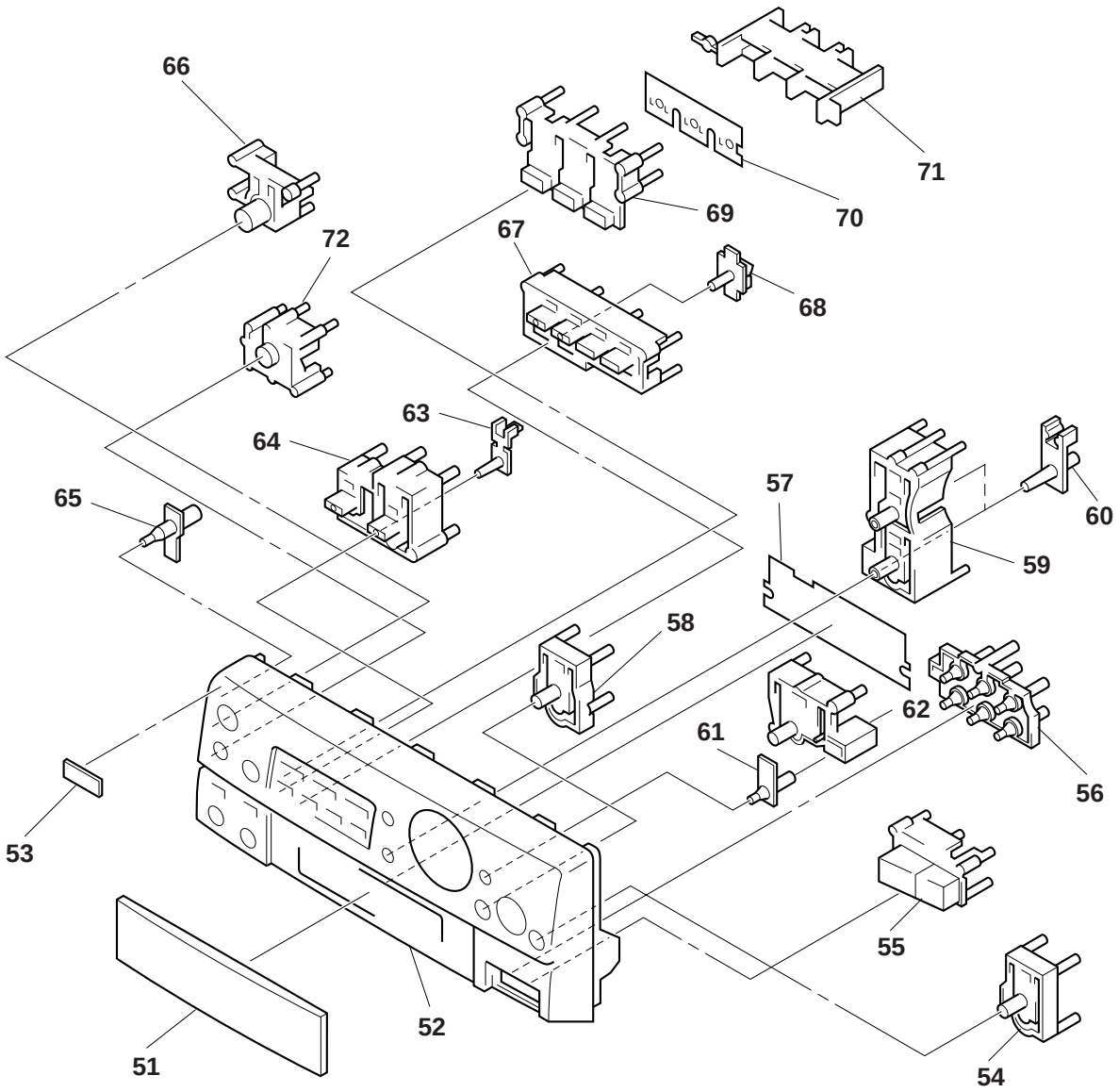
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

4-1. FRONT PANEL SECTION 1



Ref. No.	Part No.	Description	Remark
1	4-979-623-01	KNOB (JOG)	
2	4-970-955-11	KNOB (VOL)	
3	4-979-349-01	INDICATOR (VOL)	
4	1-773-004-11	WIRE (FLAT TYPE)(15 CORE)	
* 5	1-659-629-11	VOL BOARD	
6	4-977-699-11	LEG (F)	
7	4-965-822-01	FOOT	
* 8	1-659-630-11	HP/MIC BOARD	
9	4-951-620-01	SCREW (2.6X8), +BVTP	
* 10	4-979-266-01	HOLDER, FL TUBE	
11	1-777-115-11	WIRE (FLAT TYPE)(29 CORE)	
12	1-769-910-11	WIRE (FLAT TYPE)(9 CORE)	
13	4-973-043-31	KNOB (KR)	
* 14	A-4389-083-A	PANEL BOARD, COMPLETE (AEP,G,IT)	
* 14	A-4389-094-A	PANEL BOARD, COMPLETE (SP,HK)	
15	3-363-099-01	SCREW (CASE 3 TP2)	
* 16	4-980-744-61	CASE	
FL701	1-517-494-11	INDICATOR TUBE, FLUORESCENT	

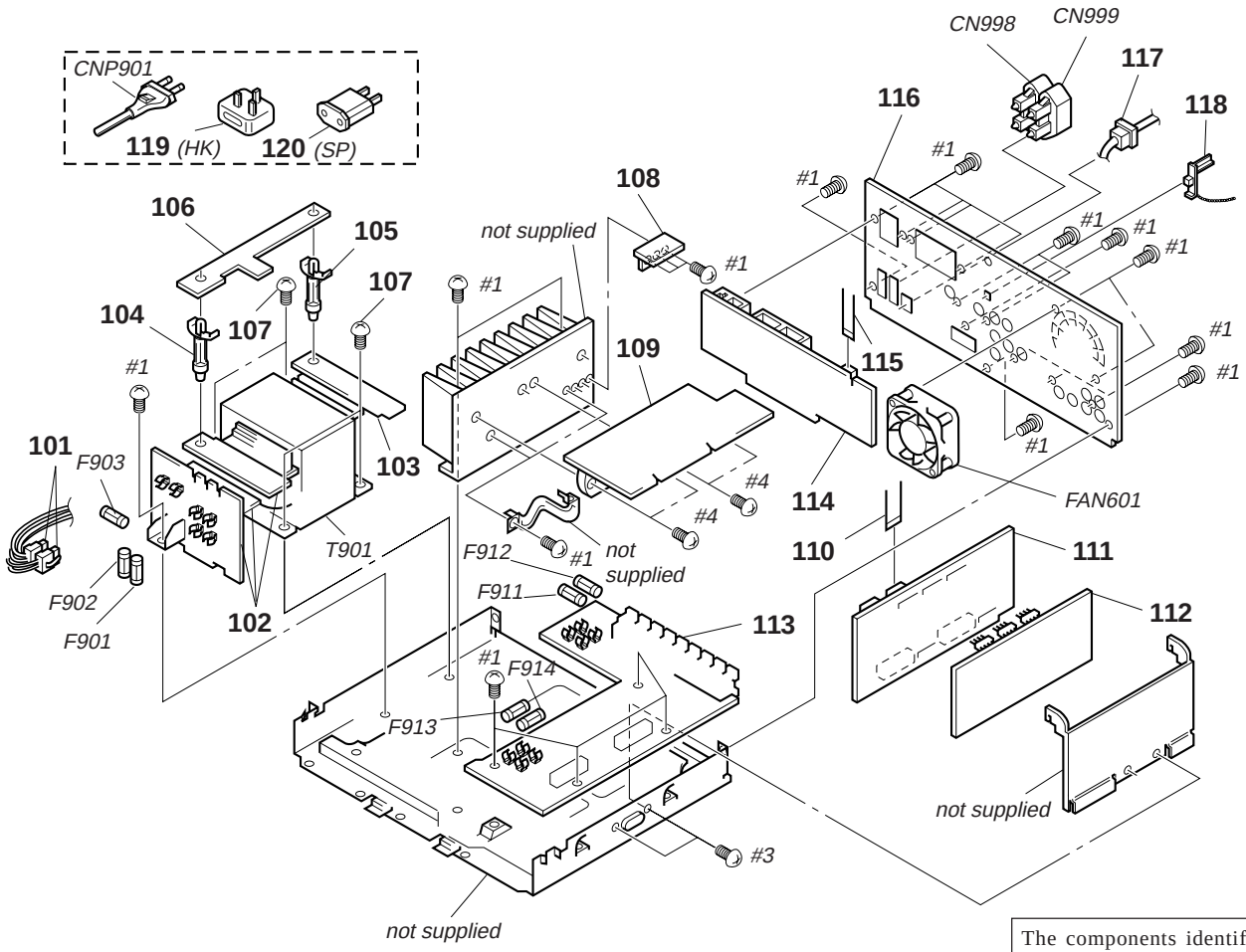
4-2. FRONT PANEL SECTION 2



Ref. No.	Part No.	Description	Remark
51	X-4947-103-1	WINDOW (FL) ASSY	
52	4-978-769-01	PANEL, FRONT	
53	4-962-708-11	EMBLEM (4-A), SONY	
54	4-978-778-01	BUTTON (ENTER)	
55	4-977-739-11	BUTTON (FUNC)	
56	4-978-779-01	INDICATOR (FUNC)	
57	4-979-352-11	FILTER (CD)	
58	4-978-777-01	BUTTON (NEXT)	
59	4-977-736-21	BUTTON (MUTE)	
60	4-977-740-01	INDICATOR (MUTE)	
61	4-979-596-01	INDICATOR (JOG)	

Ref. No.	Part No.	Description	Remark
62	4-978-776-01	BUTTON (CANCEL)	
63	4-978-774-01	INDICATOR (K)	
64	4-978-770-01	BUTTON (K)	
65	4-977-712-11	INDICATOR (POWER)	
66	4-977-708-11	BUTTON (POWER)	
67	4-978-772-01	BUTTON (MENU 2)	
68	4-978-773-01	INDICATOR (MENU)	
69	4-978-771-01	BUTTON (MENU 1)	
70	4-979-342-01	FILTER	
71	4-978-780-01	HOLDER, LED	
72	4-977-715-11	WINDOW (RM)	

4-3. CHASSIS SECTION



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
* 101	1-776-530-11	CORD (WITH CONNECTOR)	
* 102	1-659-631-11	PRIMARY BOARD	
* 103	1-659-632-11	SECONDARY BOARD	
* 104	4-924-098-31	HOLDER, PC BOARD	
* 105	4-924-098-01	HOLDER, PC BOARD	
* 106	1-659-633-11	COVER BOARD	
107	4-381-962-11	SCREW +BVTT 4X8 (S)	
* 108	1-661-106-11	REG BOARD	
* 109	A-4389-091-A	POWER AMPLIFIER BOARD, COMPLETE	(AEP,G,IT)
* 109	A-4389-100-A	POWER AMPLIFIER BOARD, COMPLETE (SP,HK)	
110	1-769-972-11	WIRE (FLAT TYPE)(13 CORE)	
* 111	A-4389-084-A	AUDIO BOARD, COMPLETE (AEP,G,IT)	
* 111	A-4389-095-A	AUDIO BOARD, COMPLETE (SP,HK)	
* 112	A-4389-093-A	DSP BOARD, COMPLETE	
* 113	A-4389-090-A	MAIN BOARD, COMPLETE (AEP,G,IT)	
* 113	A-4389-099-A	MAIN BOARD, COMPLETE (SP,HK)	
* 114	A-4389-092-A	SPEAKER BOARD, COMPLETE (AEP,G,IT)	
* 114	A-4389-101-A	SPEAKER BOARD, COMPLETE (SP,HK)	
115	1-769-882-11	WIRE (FLAT TYPE)(7 CORE)	
* 116	4-978-785-01	PANEL, BACK (AEP,G,IT)	

Ref. No.	Part No.	Description	Remark
* 116	4-978-785-11	PANEL, BACK (SP)	
* 116	4-978-785-21	PANEL, BACK (HK)	
* 117	3-703-244-00	BUSHING (2104), CORD	
118	4-956-370-02	BAND, PLUG FIXED (HK)	
119	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (HK)	
120	1-569-008-11	ADAPTER, CONVERSION 2P (SP)	
⚠CN998	1-526-794-11	OUTLET, AC	
⚠CN999	1-526-794-11	OUTLET, AC	
⚠CNP901	1-575-651-11	CORD, POWER	
⚠F901	1-532-503-51	FUSE, TIME LAG (1.6A, 250V)	
⚠F902	1-532-465-51	FUSE, TIME LAG (3.15A, 250V)(SP,HK)	
⚠F903	1-532-464-51	FUSE, TIME LAG (2.5A, 250V)	
⚠F911	1-532-388-51	FUSE, TIME LAG (2A, 250V)	
⚠F912	1-532-388-51	FUSE, TIME LAG (2A, 250V)	
⚠F913	1-532-506-51	FUSE, TIME LAG (6.3A, 250V)	
⚠F914	1-532-506-51	FUSE, TIME LAG (6.3A, 250V)	
FAN601	1-698-209-11	MOTOR, DC FAN	
⚠T901	1-429-409-11	TRANSFORMER, POWER (AEP,G,IT)	
⚠T901	1-429-410-11	TRANSFORMER, POWER (SP,HK)	

AUDIO

SECTION 5
ELECTRICAL PARTS LIST

Note:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- SEMICONDUCTORS
  In each case, u: µ , for example:
  uA...: µ A..., uPA...: µ PA..., uPB...: µ PB...,
  uPC...: µ PC..., uPD...: µ PD...
- CAPACITORS
  uF : µ F
- COILS
  uH : µ H
- Abbreviation
  G : German model
  IT : Italian model
  HK : Hong Kong model
  SP : Singapore model

Ref. No.	Part No.	Description			Remark
*	A-4389-084-A	AUDIO BOARD, COMPLETE(AEP,G,IT)			
		**********			
*	A-4389-095-A	AUDIO BOARD, COMPLETE(SP,HK)			
		**********			
		< CAPACITOR >			
C522	1-126-059-11	ELECT	10uF	20%	50V
C523	1-162-196-31	CERAMIC	5.6PF	10%	50V
C525	1-126-059-11	ELECT	10uF	20%	50V
C526	1-126-059-11	ELECT	10uF	20%	50V
C527	1-162-284-31	CERAMIC	150PF	10%	50V
C531	1-115-499-11	ELECT	220uF	20%	10V
C532	1-164-159-11	CERAMIC	0.1uF		50V
C572	1-126-059-11	ELECT	10uF	20%	50V
C573	1-162-196-31	CERAMIC	5.6PF	10%	50V
C575	1-126-059-11	ELECT	10uF	20%	50V
C576	1-126-059-11	ELECT	10uF	20%	50V
C577	1-162-284-31	CERAMIC	150PF	10%	50V
C581	1-115-499-11	ELECT	220uF	20%	10V
C582	1-164-159-11	CERAMIC	0.1uF		50V
C601	1-162-282-31	CERAMIC	100PF	10%	50V
C602	1-126-052-11	ELECT	100uF	20%	10V
C603	1-164-159-11	CERAMIC	0.1uF		50V
C604	1-126-052-11	ELECT	100uF	20%	10V
C605	1-164-159-11	CERAMIC	0.1uF		50V
C606	1-164-159-11	CERAMIC	0.1uF		50V
C607	1-162-282-31	CERAMIC	100PF	10%	50V
C608	1-162-306-11	CERAMIC	0.01uF	30%	16V
C609	1-162-306-11	CERAMIC	0.01uF	30%	16V
C651	1-126-044-11	ELECT	1uF	20%	50V
C652	1-126-044-11	ELECT	1uF	20%	50V
C931	1-126-052-11	ELECT	100uF	20%	10V
C933	1-124-997-11	ELECT	470uF	20%	10V
		< CONNECTOR >			
* CN601	1-774-629-11	CONNECTOR, BOARD TO BOARD 17P			
* CN602	1-770-732-11	CONNECTOR, BOARD TO BOARD 15P			
* CN603	1-568-858-11	SOCKET, CONNECTOR 15P			
* CN604	1-568-856-11	SOCKET, CONNECTOR 13P			
* CN605	1-565-321-11	SOCKET, CONNECTOR (PC BOARD)8P			

Ref. No.	Part No.	Description	Remark
* CN606	1-565-321-11	SOCKET, CONNECTOR (PC BOARD)8P	
* CN607	1-565-321-11	SOCKET, CONNECTOR (PC BOARD)8P	
* CN608	1-691-244-11	SOCKET, CONNECTOR 10P	
* CN609	1-565-321-11	SOCKET, CONNECTOR (PC BOARD)8P	
* CN610	1-568-844-11	SOCKET, CONNECTOR 29P	
		< DIODE >	
D531	8-719-987-63	DIODE 1N4148M	
D601	8-719-987-63	DIODE 1N4148M	
D603	8-719-987-63	DIODE 1N4148M	
D604	8-719-024-99	DIODE 11ES2-NTA2B	
D931	8-719-024-99	DIODE 11ES2-NTA2B	
D932	8-719-024-99	DIODE 11ES2-NTA2B	
		< FERRITE BEAD >	
FB601	1-410-397-21	FERRITE BEAD INDUCTOR	
FB602	1-410-397-21	FERRITE BEAD INDUCTOR	
FB603	1-410-397-21	FERRITE BEAD INDUCTOR	
		< IC >	
IC521	8-759-900-72	IC NE5532P	
IC522	8-759-900-72	IC NE5532P	
IC531	8-759-910-83	IC TL072ACP	
IC532	8-759-140-53	IC uPD4053BC	
IC601	8-759-426-76	IC HD6433927B97F	
IC602	8-759-165-80	IC PST600C-T	
IC603	8-759-962-08	IC BA6208	
		< TRANSISTOR >	
Q591	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q592	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q593	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q594	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q595	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q596	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q597	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q598	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q601	8-729-119-78	TRANSISTOR 2SC403SP-51	
Q602	8-729-900-36	TRANSISTOR DTC124ES	
Q603	8-729-900-36	TRANSISTOR DTC124ES	

Ref. No.	Part No.	Description			Remark
Q604	8-729-900-36	TRANSISTOR	DTC124ES		
Q605	8-729-900-36	TRANSISTOR	DTC124ES		
Q606	8-729-900-36	TRANSISTOR	DTC124ES		
Q607	8-729-118-00	TRANSISTOR	2SB1116-L		
Q608	8-729-900-63	TRANSISTOR	DTA124ES		
Q609	8-729-900-36	TRANSISTOR	DTC124ES		
Q610	8-729-900-36	TRANSISTOR	DTC124ES		
Q651	8-729-900-63	TRANSISTOR	DTA124ES		
Q652	8-729-900-63	TRANSISTOR	DTA124ES		
		< RESISTOR >			
R521	1-249-417-11	CARBON	1K	5%	1/4W
R522	1-249-441-11	CARBON	100K	5%	1/4W
R523	1-249-441-11	CARBON	100K	5%	1/4W
R524	1-249-441-11	CARBON	100K	5%	1/4W
R525	1-249-429-11	CARBON	10K	5%	1/4W
R526	1-249-429-11	CARBON	10K	5%	1/4W
R527	1-249-441-11	CARBON	100K	5%	1/4W
R528	1-249-429-11	CARBON	10K	5%	1/4W
R529	1-249-429-11	CARBON	10K	5%	1/4W
R531	1-249-417-11	CARBON	1K	5%	1/4W
R532	1-247-903-00	CARBON	1M	5%	1/4W
R533	1-249-421-11	CARBON	2.2K	5%	1/4W
R534	1-249-429-11	CARBON	10K	5%	1/4W
R535	1-249-429-11	CARBON	10K	5%	1/4W
R536	1-249-399-11	CARBON	33	5%	1/4W
R537	1-249-441-11	CARBON	100K	5%	1/4W
R538	1-249-417-11	CARBON	1K	5%	1/4W
R541	1-249-421-11	CARBON	2.2K	5%	1/4W
R542	1-249-409-11	CARBON	220	5%	1/4W
R543	1-249-421-11	CARBON	2.2K	5%	1/4W
R544	1-249-409-11	CARBON	220	5%	1/4W
R545	1-249-421-11	CARBON	2.2K	5%	1/4W
R546	1-249-413-11	CARBON	470	5%	1/4W
R547	1-249-421-11	CARBON	2.2K	5%	1/4W
R548	1-249-413-11	CARBON	470	5%	1/4W
R571	1-249-417-11	CARBON	1K	5%	1/4W
R572	1-249-441-11	CARBON	100K	5%	1/4W
R573	1-249-441-11	CARBON	100K	5%	1/4W
R574	1-249-441-11	CARBON	100K	5%	1/4W
R575	1-249-429-11	CARBON	10K	5%	1/4W
R576	1-249-429-11	CARBON	10K	5%	1/4W
R577	1-249-441-11	CARBON	100K	5%	1/4W
R578	1-249-429-11	CARBON	10K	5%	1/4W
R579	1-249-429-11	CARBON	10K	5%	1/4W
R581	1-249-417-11	CARBON	1K	5%	1/4W
R582	1-247-903-00	CARBON	1M	5%	1/4W
R583	1-249-421-11	CARBON	2.2K	5%	1/4W
R584	1-249-429-11	CARBON	10K	5%	1/4W
R585	1-249-429-11	CARBON	10K	5%	1/4W
R586	1-249-399-11	CARBON	33	5%	1/4W
R591	1-249-417-11	CARBON	1K	5%	1/4W

Ref. No.	Part No.	Description			Remark
R592	1-249-417-11	CARBON	1K	5%	1/4W
R593	1-249-417-11	CARBON	1K	5%	1/4W
R594	1-249-417-11	CARBON	1K	5%	1/4W
R595	1-249-417-11	CARBON	1K	5%	1/4W
R596	1-249-417-11	CARBON	1K	5%	1/4W
R597	1-249-417-11	CARBON	1K	5%	1/4W
R598	1-249-417-11	CARBON	1K	5%	1/4W
R601	1-249-429-11	CARBON	10K	5%	1/4W
R602	1-249-417-11	CARBON	1K	5%	1/4W
R603	1-249-429-11	CARBON	10K	5%	1/4W
R604	1-249-429-11	CARBON	10K	5%	1/4W
R605	1-249-393-11	CARBON	10	5%	1/4W
R606	1-249-437-11	CARBON	47K	5%	1/4W
R607	1-247-903-00	CARBON	1M	5%	1/4W
R608	1-247-807-31	CARBON	100	5%	1/4W
R609	1-247-807-31	CARBON	100	5%	1/4W
R610	1-247-807-31	CARBON	100	5%	1/4W
R611	1-247-807-31	CARBON	100	5%	1/4W
R612	1-247-807-31	CARBON	100	5%	1/4W
R613	1-249-425-11	CARBON	4.7K	5%	1/4W
R614	1-249-425-11	CARBON	4.7K	5%	1/4W
R615	1-249-417-11	CARBON	1K	5%	1/4W
R616	1-247-807-31	CARBON	100	5%	1/4W
R617	1-249-429-11	CARBON	10K	5%	1/4W
R618	1-249-429-11	CARBON	10K	5%	1/4W
R619	1-249-429-11	CARBON	10K	5%	1/4W
R620	1-247-807-31	CARBON	100	5%	1/4W
R621	1-247-807-31	CARBON	100	5%	1/4W
R622	1-247-807-31	CARBON	100	5%	1/4W
R623	1-247-807-31	CARBON	100	5%	1/4W
R624	1-247-807-31	CARBON	100	5%	1/4W
R625	1-247-807-31	CARBON	100	5%	1/4W
R626	1-247-807-31	CARBON	100	5%	1/4W
R627	1-247-807-31	CARBON	100	5%	1/4W
R628	1-247-807-31	CARBON	100	5%	1/4W
R629	1-247-807-31	CARBON	100	5%	1/4W
R630	1-247-807-31	CARBON	100	5%	1/4W
R631	1-247-807-31	CARBON	100	5%	1/4W
R632	1-247-807-31	CARBON	100	5%	1/4W
R633	1-247-807-31	CARBON	100	5%	1/4W
R634	1-247-807-31	CARBON	100	5%	1/4W
R635	1-247-807-31	CARBON	100	5%	1/4W
R636	1-247-807-31	CARBON	100	5%	1/4W
R637	1-247-807-31	CARBON	100	5%	1/4W
R638	1-247-807-31	CARBON	100	5%	1/4W
R639	1-247-807-31	CARBON	100	5%	1/4W
R640	1-247-807-31	CARBON	100	5%	1/4W
R641	1-247-807-31	CARBON	100	5%	1/4W
R642	1-247-807-31	CARBON	100	5%	1/4W
R643	1-247-807-31	CARBON	100	5%	1/4W
R645	1-247-807-31	CARBON	100	5%	1/4W
R646	1-247-807-31	CARBON	100	5%	1/4W

AUDIO DSP

Ref. No.	Part No.	Description			Remark
R647	1-247-807-31	CARBON	100	5%	1/4W
R648	1-249-421-11	CARBON	2.2K	5%	1/4W
R649	1-249-409-11	CARBON	220	5%	1/4W
R650	1-249-417-11	CARBON	1K	5%	1/4W
R651	1-249-417-11	CARBON	1K	5%	1/4W
R652	1-249-417-11	CARBON	1K	5%	1/4W
R653	1-249-417-11	CARBON	1K	5%	1/4W
R654	1-249-421-11	CARBON	2.2K	5%	1/4W
R655	1-249-429-11	CARBON	10K	5%	1/4W
R656	1-249-417-11	CARBON	1K	5%	1/4W
R657	1-249-421-11	CARBON	2.2K	5%	1/4W
R658	1-249-429-11	CARBON	10K	5%	1/4W
R659	1-249-385-11	CARBON	2.2	5%	1/6W
		< VIBRATOR >			
X601	1-577-377-11	VIBRATOR, CERAMIC(10MHz)			

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*	A-4389-093-A	DSP BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C101	1-124-638-11	ELECT	22uF	20%	10V
C102	1-124-638-11	ELECT	22uF	20%	10V
C103	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C104	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C105	1-124-638-11	ELECT	22uF	20%	10V
C106	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C107	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C108	1-126-154-11	ELECT	47uF	20%	6.3V
C109	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C110	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C111	1-124-638-11	ELECT	22uF	20%	10V
C112	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C113	1-124-638-11	ELECT	22uF	20%	10V
C114	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C117	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C120	1-124-638-11	ELECT	22uF	20%	10V
C121	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C123	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C125	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C151	1-124-638-11	ELECT	22uF	20%	10V
C152	1-124-638-11	ELECT	22uF	20%	10V
C153	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C154	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C155	1-124-638-11	ELECT	22uF	20%	10V
C156	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C159	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C160	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C175	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C201	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C202	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C203	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C204	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C206	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C207	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C208	1-126-177-11	ELECT	100uF	20%	10V
C209	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C210	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C211	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C212	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C213	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C301	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C302	1-124-638-11	ELECT	22uF	20%	10V
C303	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C304	1-126-154-11	ELECT	47uF	20%	6.3V
C305	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C306	1-126-177-11	ELECT	100uF	20%	10V
C307	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C308	1-126-154-11	ELECT	47uF	20%	6.3V
C309	1-124-638-11	ELECT	22uF	20%	10V
C310	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C311	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C313	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C314	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C315	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C316	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C317	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C321	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C322	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C323	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C324	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C325	1-163-143-00	CERAMIC CHIP	0.0012uF	5%	50V
C331	1-124-638-11	ELECT	22uF	20%	10V
C332	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C333	1-124-257-00	ELECT	2.2uF	20%	50V
C334	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C341	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C342	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C343	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C371	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C372	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C373	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C374	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C375	1-163-143-00	CERAMIC CHIP	0.0012uF	5%	50V
C381	1-124-638-11	ELECT	22uF	20%	10V
C382	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C383	1-124-257-00	ELECT	2.2uF	20%	50V
C384	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C391	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C392	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C393	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V

Ref. No.	Part No.	Description			Remark
C399	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C401	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C402	1-124-638-11	ELECT	22uF	20%	10V
C403	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C404	1-126-154-11	ELECT	47uF	20%	6.3V
C405	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C406	1-126-177-11	ELECT	100uF	20%	10V
C407	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C408	1-126-154-11	ELECT	47uF	20%	6.3V
C409	1-124-638-11	ELECT	22uF	20%	10V
C410	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C411	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C413	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C421	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C422	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C423	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C424	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C425	1-163-143-00	CERAMIC CHIP	0.0012uF	5%	50V
C426	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C427	1-124-257-00	ELECT	2.2uF	20%	50V
C471	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C472	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C473	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C474	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C475	1-163-143-00	CERAMIC CHIP	0.0012uF	5%	50V
C476	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C477	1-124-257-00	ELECT	2.2uF	20%	50V
		< CONNECTOR >			
CN1	1-774-782-11	PIN, CONNECTOR (PC BOARD) 10P			
CN2	1-774-781-11	PIN, CONNECTOR (PC BOARD) 8P			
CN3	1-774-781-11	PIN, CONNECTOR (PC BOARD) 8P			
CN4	1-774-781-11	PIN, CONNECTOR (PC BOARD) 8P			
CN5	1-774-781-11	PIN, CONNECTOR (PC BOARD) 8P			
		< FERRITE BEAD >			
FB101	1-414-235-11	INDUCTOR, FERRITE BEAD			
FB102	1-414-235-11	INDUCTOR, FERRITE BEAD			
FB103	1-414-235-11	INDUCTOR, FERRITE BEAD			
FB201	1-414-235-11	INDUCTOR, FERRITE BEAD			
FB202	1-414-235-11	INDUCTOR, FERRITE BEAD			
FB301	1-414-235-11	INDUCTOR, FERRITE BEAD			
FB302	1-414-235-11	INDUCTOR, FERRITE BEAD			
FB303	1-414-235-11	INDUCTOR, FERRITE BEAD			
FB304	1-414-235-11	INDUCTOR, FERRITE BEAD			
FB401	1-414-235-11	INDUCTOR, FERRITE BEAD			
FB402	1-414-235-11	INDUCTOR, FERRITE BEAD			
FB403	1-414-235-11	INDUCTOR, FERRITE BEAD			
		< IC >			
IC101	8-759-352-59	IC CXA8054M			
IC102	8-759-352-63	IC CXD8566M			

Ref. No.	Part No.	Description			Remark
IC201	8-752-350-78	IC CXK58257AM-70L-T6			
IC202	8-752-370-90	IC CXD2708Q			
IC301	8-759-362-47	IC CXD8567AM			
IC303	8-759-636-55	IC M5218AFP			
IC304	8-759-636-55	IC M5218AFP			
IC305	8-759-636-55	IC M5218AFP			
IC401	8-759-362-47	IC CXD8567AM			
IC403	8-759-636-55	IC M5218AFP			
IC404	8-759-636-55	IC M5218AFP			
		< COIL >			
L101	1-410-478-11	INDUCTOR 47uH			
L102	1-410-478-11	INDUCTOR 47uH			
L201	1-410-478-11	INDUCTOR 47uH			
L301	1-410-478-11	INDUCTOR 47uH			
		< TRANSISTOR >			
Q331	8-729-107-46	TRANSISTOR 2SC3624A-L15			
Q332	8-729-107-46	TRANSISTOR 2SC3624A-L15			
Q333	8-729-107-46	TRANSISTOR 2SC3624A-L15			
Q381	8-729-107-46	TRANSISTOR 2SC3624A-L15			
Q382	8-729-107-46	TRANSISTOR 2SC3624A-L15			
Q383	8-729-107-46	TRANSISTOR 2SC3624A-L15			
Q396	8-729-424-08	TRANSISTOR UN2111			
Q397	8-729-424-08	TRANSISTOR UN2111			
Q398	8-729-424-08	TRANSISTOR UN2111			
		< RESISTOR >			
R101	1-216-081-00	METAL CHIP	22K	5%	1/10W
R102	1-216-081-91	METAL GLAZE	22K	5%	1/10W
R103	1-216-017-91	METAL GLAZE	47	5%	1/10W
R104	1-216-033-00	METAL CHIP	220	5%	1/10W
R105	1-216-017-91	METAL GLAZE	47	5%	1/10W
R106	1-216-017-91	METAL GLAZE	47	5%	1/10W
R151	1-216-081-00	METAL CHIP	22K	5%	1/10W
R152	1-216-081-91	METAL GLAZE	22K	5%	1/10W
R201	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R202	1-216-001-00	METAL CHIP	10	5%	1/10W
R203	1-216-041-00	METAL CHIP	470	5%	1/10W
R221	1-216-033-00	METAL CHIP	220	5%	1/10W
R222	1-216-033-00	METAL CHIP	220	5%	1/10W
R223	1-216-033-00	METAL CHIP	220	5%	1/10W
R224	1-216-033-00	METAL CHIP	220	5%	1/10W
R225	1-216-033-00	METAL CHIP	220	5%	1/10W
R226	1-216-033-00	METAL CHIP	220	5%	1/10W
R228	1-216-033-00	METAL CHIP	220	5%	1/10W
R229	1-216-033-00	METAL CHIP	220	5%	1/10W
R230	1-216-033-00	METAL CHIP	220	5%	1/10W
R231	1-216-033-00	METAL CHIP	220	5%	1/10W
R232	1-216-033-00	METAL CHIP	220	5%	1/10W
R233	1-216-033-00	METAL CHIP	220	5%	1/10W
R234	1-216-033-00	METAL CHIP	220	5%	1/10W

DSP **HP/MIC** **MAIN**

Ref. No.	Part No.	Description			Remark
R235	1-216-033-00	METAL CHIP	220	5%	1/10W
R303	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R304	1-216-041-00	METAL CHIP	470	5%	1/10W
R305	1-216-121-91	METAL GLAZE	1M	5%	1/10W
R306	1-216-041-00	METAL GLAZE	470	5%	1/10W
R310	1-216-079-00	METAL CHIP	18K	5%	1/10W
R311	1-216-077-00	METAL CHIP	15K	5%	1/10W
R312	1-216-079-00	METAL CHIP	18K	5%	1/10W
R313	1-216-077-00	METAL CHIP	15K	5%	1/10W
R314	1-216-079-00	METAL CHIP	18K	5%	1/10W
R315	1-216-079-00	METAL CHIP	18K	5%	1/10W
R321	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R322	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R323	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R331	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R332	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R333	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R334	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R335	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R336	1-216-043-91	METAL GLAZE	560	5%	1/10W
R337	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R341	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R342	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R343	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R360	1-216-079-00	METAL CHIP	18K	5%	1/10W
R361	1-216-077-00	METAL CHIP	15K	5%	1/10W
R362	1-216-079-00	METAL CHIP	18K	5%	1/10W
R363	1-216-077-00	METAL CHIP	15K	5%	1/10W
R364	1-216-079-00	METAL CHIP	18K	5%	1/10W
R365	1-216-079-00	METAL CHIP	18K	5%	1/10W
R371	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R372	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R373	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R381	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R382	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R383	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R384	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R385	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R386	1-216-043-91	METAL GLAZE	560	5%	1/10W
R387	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R391	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R392	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R393	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R396	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R397	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R398	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R403	1-216-295-91	CONDUCTOR, CHIP(2012)			
R410	1-216-079-00	METAL CHIP	18K	5%	1/10W
R411	1-216-077-00	METAL CHIP	15K	5%	1/10W
R412	1-216-079-00	METAL CHIP	18K	5%	1/10W
R413	1-216-077-00	METAL CHIP	15K	5%	1/10W
R414	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R415	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R421	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R422	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R423	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R424	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R460	1-216-079-00	METAL CHIP	18K	5%	1/10W
R461	1-216-077-00	METAL CHIP	15K	5%	1/10W
R462	1-216-079-00	METAL CHIP	18K	5%	1/10W
R463	1-216-077-00	METAL CHIP	15K	5%	1/10W
R464	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R465	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R471	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R472	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R473	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R474	1-216-097-91	METAL GLAZE	100K	5%	1/10W
		< VIBRATOR >			
X201	1-579-069-11	VIBRATOR, CRYSTAL(49.152MHz)			
X301	1-579-314-11	VIBRATOR, CRYSTAL(22.5792MHz)			
**********					
*	1-659-630-11	HP/MIC BOARD			
		**********			
		< CAPACITOR >			
C792	1-162-306-11	CERAMIC	0.01uF	30%	16V
C793	1-162-306-11	CERAMIC	0.01uF	30%	16V
C794	1-164-159-11	CERAMIC	0.1uF		50V
C795	1-164-159-11	CERAMIC	0.1uF		50V
		< CONNECTOR >			
* CN792	1-568-828-11	SOCKET, CONNECTOR 9P			
		< JACK >			
J791	1-507-854-00	JACK,PHONE(PHONES)			
J792	1-507-854-00	JACK,PHONE(MIX MIC)			
**********					
*	A-4389-090-A	MAIN BOARD, COMPLETE(AEP,G,IT)			
		**********			
*	A-4389-099-A	MAIN BOARD, COMPLETE(SP,HK)			
		**********			
	1-533-217-31	HOLDER, FUSE			
		< CAPACITOR >			
C503	1-164-070-11	CERAMIC	100PF	5%	50V
C505	1-164-070-11	CERAMIC	100PF	5%	50V
C508	1-164-070-11	CERAMIC	100PF	5%	50V
C511	1-164-070-11	CERAMIC	100PF	5%	50V
C553	1-164-070-11	CERAMIC	100PF	5%	50V

Ref. No.	Part No.	Description			Remark
C555	1-164-070-11	CERAMIC	100PF	5%	50V
C558	1-164-070-11	CERAMIC	100PF	5%	50V
C561	1-164-070-11	CERAMIC	100PF	5%	50V
C661	1-126-163-11	ELECT	4.7uF	20%	50V
C901	1-136-165-00	FILM	0.1uF	5%	50V
C902	1-136-165-00	FILM	0.1uF	5%	50V
C903	1-136-165-00	FILM	0.1uF	5%	50V
C904	1-136-165-00	FILM	0.1uF	5%	50V
C905	1-124-122-11	ELECT	100uF	20%	50V
C906	1-124-122-11	ELECT	100uF	20%	50V
C907	1-124-122-11	ELECT	100uF	20%	50V
C908	1-126-059-11	ELECT	10uF	20%	50V
C909	1-126-969-11	ELECT	220uF	20%	50V
C910	1-124-122-11	ELECT	100uF	20%	50V
C911	1-115-361-11	ELECT	6800uF	20%	50V
C912	1-126-041-11	ELECT	2200uF	20%	35V
C913	1-126-936-11	ELECT	3300uF	20%	16V
C914	1-126-944-11	ELECT	3300uF	20%	25V
C951	1-136-165-00	FILM	0.1uF	5%	50V
C952	1-136-165-00	FILM	0.1uF	5%	50V
C953	1-136-165-00	FILM	0.1uF	5%	50V
C961	1-115-361-11	ELECT	6800uF	20%	50V
C962	1-126-041-11	ELECT	2200uF	20%	35V
C963	1-124-556-11	ELECT	2200uF	20%	16V
		< CONNECTOR >			
CN501	1-770-158-21	HOUSING, CONNECTOR 7P(SYSTEM CONTROL)			
CN506	1-691-772-11	PLUG (MICRO CONNECTOR) 10P			
CN508	1-691-768-11	PLUG (MICRO CONNECTOR) 6P			
CN509	1-691-769-11	PLUG (MICRO CONNECTOR) 7P			
* CN510	1-568-826-11	SOCKET, CONNECTOR 7P			
CN511	1-774-628-11	CONNECTOR, BOARD TO BOARD 17P			
CN512	1-766-956-11	CONNECTOR, BOARD TO BOARD 15P			
		< DIODE >			
D661	8-719-987-63	DIODE 1N4148M			
D662	8-719-987-63	DIODE 1N4148M			
D663	8-719-987-63	DIODE 1N4148M			
D664	8-719-987-63	DIODE 1N4148M			
D665	8-719-987-63	DIODE 1N4148M			
D901	8-719-510-68	DIODE D5SBA20F01			
D902	8-719-025-03	DIODE RBA-402-SL			
D903	8-719-024-99	DIODE 11ES2-NTA2B			
D904	8-719-024-99	DIODE 11ES2-NTA2B			
D905	8-719-024-99	DIODE 11ES2-NTA2B			
D906	8-719-024-99	DIODE 11ES2-NTA2B			
D907	8-719-024-99	DIODE 11ES2-NTA2B			
D908	8-719-024-99	DIODE 11ES2-NTA2B			
D909	8-719-024-99	DIODE 11ES2-NTA2B			
D910	8-719-015-99	DIODE UZP-27BB-TP			
D911	8-719-014-48	DIODE UZP-4.7B			

Ref. No.	Part No.	Description			Remark
D912	8-719-024-99	DIODE 11ES2-NTA2B			
D953	8-719-024-99	DIODE 11ES2-NTA2B			
D954	8-719-024-99	DIODE 11ES2-NTA2B			
D955	8-719-024-99	DIODE 11ES2-NTA2B			
D956	8-719-024-99	DIODE 11ES2-NTA2B			
		< FUSE >			
⚠F911	1-532-388-51	FUSE,TIME LAG(2A,250V)			
⚠F912	1-532-388-51	FUSE,TIME LAG(2A,250V)			
⚠F913	1-532-506-51	FUSE,TIME LAG(6.3A,250V)			
⚠F914	1-532-506-51	FUSE,TIME LAG(6.3A,250V)			
		< IC >			
IC501	8-759-000-47	IC MC14051BCP			
IC502	8-759-000-47	IC MC14051BCP			
IC503	8-759-000-48	IC MC14052BCP			
		< IC LINK >			
⚠ICP901	1-532-834-21	LINK, IC(0.315A)			
		< JACK >			
J501	1-770-615-12	JACK, PIN 6P(TUNER IN,CD IN,MD OUT)			
J502	1-770-615-12	JACK, PIN 6P(MD IN,TAPE OUT,TAPE IN)			
J503	1-770-615-12	JACK, PIN 6P (VIDEO2 IN,VIDEO1 OUT,VIDEO1 IN)			
		< TRANSISTOR >			
Q661	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q662	8-729-900-36	TRANSISTOR DTC124ES			
Q663	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q901	8-729-111-29	TRANSISTOR 2SD1616A-K			
		< RESISTOR >			
R501	1-249-417-11	CARBON	1K	5%	1/4W
R502	1-249-425-11	CARBON	4.7K	5%	1/4W
R503	1-249-417-11	CARBON	1K	5%	1/4W
R504	1-249-425-11	CARBON	4.7K	5%	1/4W
R505	1-249-417-11	CARBON	1K	5%	1/4W
R506	1-249-417-11	CARBON	1K	5%	1/4W
R507	1-249-417-11	CARBON	1K	5%	1/4W
R508	1-249-417-11	CARBON	1K	5%	1/4W
R509	1-249-417-11	CARBON	1K	5%	1/4W
R512	1-249-428-11	CARBON	8.2K	5%	1/4W
R513	1-249-428-11	CARBON	8.2K	5%	1/4W
R517	1-249-417-11	CARBON	1K	5%	1/4W
R518	1-249-417-11	CARBON	1K	5%	1/4W
R519	1-249-417-11	CARBON	1K	5%	1/4W
R551	1-249-417-11	CARBON	1K	5%	1/4W
R552	1-249-425-11	CARBON	4.7K	5%	1/4W
R553	1-249-417-11	CARBON	1K	5%	1/4W
R554	1-249-425-11	CARBON	4.7K	5%	1/4W
R555	1-249-417-11	CARBON	1K	5%	1/4W

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

MAIN PANEL

Ref. No.	Part No.	Description			Remark
R556	1-249-417-11	CARBON	1K	5%	1/4W
R557	1-249-417-11	CARBON	1K	5%	1/4W
R558	1-249-417-11	CARBON	1K	5%	1/4W
R559	1-249-417-11	CARBON	1K	5%	1/4W
R562	1-249-428-11	CARBON	8.2K	5%	1/4W
R563	1-249-428-11	CARBON	8.2K	5%	1/4W
R567	1-249-417-11	CARBON	1K	5%	1/4W
R568	1-249-417-11	CARBON	1K	5%	1/4W
R569	1-249-417-11	CARBON	1K	5%	1/4W
R661	1-249-429-11	CARBON	10K	5%	1/4W
R662	1-249-429-11	CARBON	10K	5%	1/4W
R663	1-249-417-11	CARBON	1K	5%	1/4W
R664	1-249-429-11	CARBON	10K	5%	1/4W
R665	1-249-441-11	CARBON	100K	5%	1/4W
R666	1-249-417-11	CARBON	1K	5%	1/4W
R691	1-249-429-11	CARBON	10K	5%	1/4W
R692	1-249-429-11	CARBON	10K	5%	1/4W
R693	1-249-429-11	CARBON	10K	5%	1/4W
R694	1-249-417-11	CARBON	1K	5%	1/4W
R695	1-249-417-11	CARBON	1K	5%	1/4W
R696	1-249-417-11	CARBON	1K	5%	1/4W
R901	1-249-417-11	CARBON	1K	5%	1/4W
R902	1-249-425-11	CARBON	4.7K	5%	1/4W
R903	1-249-409-11	CARBON	220	5%	1/4W
R904	1-249-409-11	CARBON	220	5%	1/4W
⚠R905	1-219-136-11	FUSIBLE	0.22	5%	1/4W F

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*	A-4389-083-A	PANEL BOARD, COMPLETE(AEP,G,IT)				
		**********				
*	A-4389-094-A	PANEL BOARD, COMPLETE(SP,HK)				
		**********				
*	4-979-266-01	HOLDER, FL TUBE				
		< CAPACITOR >				
C701	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C702	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C703	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C704	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C705	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C706	1-164-159-11	CERAMIC	0.1uF		50V	
C710	1-124-589-11	ELECT	47uF	20%	16V	
C711	1-164-159-11	CERAMIC	0.1uF		50V	
C712	1-124-589-11	ELECT	47uF	20%	16V	
C713	1-164-159-11	CERAMIC	0.1uF		50V	
C714	1-124-584-00	ELECT	100uF	20%	10V	
C715	1-164-159-11	CERAMIC	0.1uF		50V	
C716	1-124-261-00	ELECT	10uF	20%	50V	
C717	1-164-159-11	CERAMIC	0.1uF		50V	
C722	1-164-159-11	CERAMIC	0.1uF		50V	
C723	1-126-052-11	ELECT	100uF	20%	10V	

Ref. No.	Part No.	Description			Remark
C726	1-162-294-31	CERAMIC	0.001uF	10%	50V
C728	1-164-159-11	CERAMIC	0.1uF		50V
C729	1-162-306-11	CERAMIC	0.01uF	30%	16V
C730	1-162-294-31	CERAMIC	0.001uF	10%	50V
C771	1-162-294-31	CERAMIC	0.001uF	10%	50V
C772	1-126-301-11	ELECT	1uF	20%	50V
C773	1-162-282-31	CERAMIC	100PF	10%	50V
C774	1-162-282-31	CERAMIC	100PF	10%	50V
C775	1-126-301-11	ELECT	1uF	20%	50V
C776	1-162-282-31	CERAMIC	100PF	10%	50V
C777	1-164-159-11	CERAMIC	0.1uF		50V
C778	1-164-159-11	CERAMIC	0.1uF		50V
C779	1-162-282-31	CERAMIC	100PF	10%	50V
C780	1-162-282-31	CERAMIC	100PF	10%	50V
C781	1-126-301-11	ELECT	1uF	20%	50V
C782	1-124-584-00	ELECT	100uF	20%	10V
C783	1-124-584-00	ELECT	100uF	20%	10V

< CONNECTOR >

* CN701	1-568-844-11	SOCKET, CONNECTOR 29P	
* CN703	1-568-828-11	SOCKET, CONNECTOR 9P	

< DIODE >

D701	8-719-056-11	DIODE	SML72423C-TP4(VIDEO 1)
D702	8-719-056-11	DIODE	SML72423C-TP4(VIDEO 2)
D703	8-719-046-70	DIODE	SEL5620C(TAPE)
D704	8-719-046-70	DIODE	SEL5620C(MD)
D705	8-719-046-70	DIODE	SEL5620C(CD)
D706	8-719-046-70	DIODE	SEL5620C(TUNER)
D707	8-719-046-39	DIODE	SEL5821A-TH15(MUSIC MENU)
D708	8-719-046-39	DIODE	SEL5821A-TH15(MUSIC MENU)
D709	8-719-046-39	DIODE	SEL5821A-TH15(P.FILE)
D710	8-719-046-39	DIODE	SEL5821A-TH15(P.FILE)
D711	8-719-046-39	DIODE	SEL5821A-TH15(PRO LOGIC)
D712	8-719-046-39	DIODE	SEL5821A-TH15(PRO LOGIC)
D713	8-719-046-44	DIODE	SEL5221S(MUSIC EFFECT)
D714	8-719-046-44	DIODE	SEL5221S(PRESENCE)
D715	8-719-046-44	DIODE	SEL5221S(KARAOKE PON/MPX)
D716	8-719-046-44	DIODE	SEL5221S(SOURCE DIRECT)
D717	8-719-046-44	DIODE	SEL5221S(-20dB MUTE)
D718	8-719-046-44	DIODE	SEL5221S(MULTI CONTROLLER)
D719	8-719-046-44	DIODE	SEL5221S(ENTER)
D720	8-719-046-43	DIODE	SEL5421E-TP15(NEXT)
D721	8-719-046-44	DIODE	SEL5221S(ON/STANDBY)
D724	8-719-024-99	DIODE	11ES2-NTA2B

< FLUORESCENT INDICATOR >

FL701	1-517-494-11	INDICATOR TUBE, FLUORESCENT

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remark
		< IC >			
IC701	8-759-082-95	IC SN755705			
IC702	8-759-082-95	IC SN755705			
IC703	8-749-920-83	IC GP1U52XB			
IC704	8-759-373-50	IC NJU3719			
IC771	8-759-634-51	IC M5218AP			
		< TRANSISTOR >			
Q731	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q732	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q733	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q734	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q735	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q736	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q737	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q738	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q739	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q740	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q741	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q742	8-729-119-78	TRANSISTOR 2SC403SP-51			
		< RESISTOR >			
R701	1-249-423-11	CARBON	3.3K	5%	1/4W
R702	1-249-413-11	CARBON	470	5%	1/4W
R703	1-249-415-11	CARBON	680	5%	1/4W
R704	1-249-423-11	CARBON	3.3K	5%	1/4W
R705	1-249-413-11	CARBON	470	5%	1/4W
R706	1-249-415-11	CARBON	680	5%	1/4W
R707	1-249-417-11	CARBON	1K	5%	1/4W
R708	1-247-834-11	CARBON	1.3K	5%	1/4W
R709	1-249-421-11	CARBON	2.2K	5%	1/4W
R710	1-249-425-11	CARBON	4.7K	5%	1/4W
R711	1-249-423-11	CARBON	3.3K	5%	1/4W
R712	1-249-413-11	CARBON	470	5%	1/4W
R713	1-249-415-11	CARBON	680	5%	1/4W
R714	1-249-417-11	CARBON	1K	5%	1/4W
R715	1-247-834-11	CARBON	1.3K	5%	1/4W
R716	1-249-421-11	CARBON	2.2K	5%	1/4W
R717	1-249-425-11	CARBON	4.7K	5%	1/4W
R719	1-249-411-11	CARBON	330	5%	1/4W
R720	1-249-413-11	CARBON	470	5%	1/4W
R721	1-249-411-11	CARBON	330	5%	1/4W
R722	1-249-413-11	CARBON	470	5%	1/4W
R723	1-249-413-11	CARBON	470	5%	1/4W
R724	1-249-403-11	CARBON	68	5%	1/4W
R725	1-249-409-11	CARBON	220	5%	1/4W
R726	1-249-409-11	CARBON	220	5%	1/4W
R727	1-249-409-11	CARBON	220	5%	1/4W
R728	1-249-409-11	CARBON	220	5%	1/4W
R729	1-247-807-31	CARBON	100	5%	1/4W
R730	1-249-409-11	CARBON	220	5%	1/4W
R731	1-249-409-11	CARBON	220	5%	1/4W

Ref. No.	Part No.	Description			Remark
R735	1-249-429-11	CARBON	10K	5%	1/4W
R736	1-249-429-11	CARBON	10K	5%	1/4W
R741	1-249-441-11	CARBON	100K	5%	1/4W
R742	1-249-437-11	CARBON	47K	5%	1/4W
R743	1-247-807-31	CARBON	100	5%	1/4W
R744	1-247-807-31	CARBON	100	5%	1/4W
R745	1-247-807-31	CARBON	100	5%	1/4W
R746	1-247-807-31	CARBON	100	5%	1/4W
R747	1-247-807-31	CARBON	100	5%	1/4W
R748	1-247-807-31	CARBON	100	5%	1/4W
R749	1-247-807-31	CARBON	100	5%	1/4W
R771	1-249-441-11	CARBON	100K	5%	1/4W
R772	1-249-417-11	CARBON	1K	5%	1/4W
R773	1-249-441-11	CARBON	100K	5%	1/4W
R774	1-249-417-11	CARBON	1K	5%	1/4W
R775	1-249-441-11	CARBON	100K	5%	1/4W
R776	1-249-433-11	CARBON	22K	5%	1/4W
R777	1-249-441-11	CARBON	100K	5%	1/4W
R778	1-249-441-11	CARBON	100K	5%	1/4W
R779	1-249-421-11	CARBON	2.2K	5%	1/4W
R781	1-247-807-31	CARBON	100	5%	1/4W
R782	1-247-807-31	CARBON	100	5%	1/4W
		< COMPOSITION CIRCUIT BLOCK >			
RB701	1-233-214-11	COMPOSITION CIRCUIT BLOCK			
RB702	1-233-020-11	COMPOSITION CIRCUIT BLOCK			
		< VARIABLE RESISTOR >			
RV771	1-223-974-11	RES, VAR, CARBON 50K(MIC LEVEL)			
		< SWITCH >			
S701	1-554-303-21	SWITCH, TACTILE(ON/STANDBY)			
S702	1-554-303-21	SWITCH, TACTILE(AUDIO)			
S703	1-554-303-21	SWITCH, TACTILE(VIDEO)			
S704	1-554-303-21	SWITCH, TACTILE(-20dB MUTE)			
S705	1-554-303-21	SWITCH, TACTILE(SOURCE DIRECT)			
S706	1-554-303-21	SWITCH, TACTILE(KARAOKE PON/MPX)			
S707	1-554-303-21	SWITCH, TACTILE(DISPLAY)			
S708	1-554-303-21	SWITCH, TACTILE(ENTER)			
S709	1-554-303-21	SWITCH, TACTILE(NEXT)			
S710	1-554-303-21	SWITCH, TACTILE(CANCEL)			
S711	1-554-303-21	SWITCH, TACTILE(MUSIC MENU)			
S712	1-554-303-21	SWITCH, TACTILE(P.FILE)			
S713	1-554-303-21	SWITCH, TACTILE(PRO LOGIC)			
S714	1-554-303-21	SWITCH, TACTILE(MUSIC EFFECT)			
S715	1-554-303-21	SWITCH, TACTILE(PRESENCE)			
S716	1-554-303-21	SWITCH, TACTILE(MEMORY)			
S717	1-554-303-21	SWITCH, TACTILE(NAME)			
S720	1-473-485-11	ENCODER, ROTARY(MULTI CONTOLLER)			

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POWER AMPLIFIER

Ref. No.	Part No.	Description			Remark
*	A-4389-091-A	POWER AMPLIFIER BOARD,COMPLETE(AEP,G,IT)			
		**********			
*	A-4389-100-A	POWER AMPLIFIER BOARD, COMPLETE(SP,HK)			
		**********			
		< CAPACITOR >			
C801	1-126-233-11	ELECT	22uF	20%	50V
C802	1-162-282-31	CERAMIC	100PF	10%	50V
C803	1-124-122-11	ELECT	100uF	20%	50V
C804	1-126-868-11	ELECT	47uF	20%	50V
C805	1-124-122-11	ELECT	100uF	20%	50V
C806	1-126-233-11	ELECT	22uF	20%	50V
C807	1-136-165-00	FILM	0.1uF	5%	50V
C808	1-136-165-00	FILM	0.1uF	5%	50V
C809	1-126-233-11	ELECT	22uF	20%	50V
C811	1-162-294-31	CERAMIC	0.001uF	10%	50V
C821	1-126-052-11	ELECT	100uF	20%	10V
C822	1-126-059-11	ELECT	10uF	20%	50V
C823	1-162-294-31	CERAMIC	0.001uF	10%	50V
C824	1-164-159-11	CERAMIC	0.1uF		50V
C831	1-126-045-11	ELECT	2.2uF	20%	50V
C832	1-162-282-31	CERAMIC	100PF	10%	50V
C833	1-126-868-11	ELECT	47uF	20%	50V
C834	1-126-233-11	ELECT	22uF	20%	50V
C836	1-126-233-11	ELECT	22uF	20%	50V
C837	1-164-159-11	CERAMIC	0.1uF		50V
C838	1-164-159-11	CERAMIC	0.1uF		50V
C839	1-126-233-11	ELECT	22uF	20%	50V
C840	1-126-233-11	ELECT	22uF	20%	50V
C841	1-162-294-31	CERAMIC	0.001uF	10%	50V
C851	1-126-233-11	ELECT	22uF	20%	50V
C852	1-162-282-31	CERAMIC	100PF	10%	50V
C853	1-124-122-11	ELECT	100uF	20%	50V
C854	1-126-868-11	ELECT	47uF	20%	50V
C855	1-124-122-11	ELECT	100uF	20%	50V
C857	1-136-165-00	FILM	0.1uF	5%	50V
C858	1-136-165-00	FILM	0.1uF	5%	50V
C859	1-126-233-11	ELECT	22uF	20%	50V
C881	1-126-045-11	ELECT	2.2uF	20%	50V
C882	1-162-282-31	CERAMIC	100PF	10%	50V
C883	1-126-868-11	ELECT	47uF	20%	50V
C884	1-126-233-11	ELECT	22uF	20%	50V
C887	1-164-159-11	CERAMIC	0.1uF		50V
C888	1-164-159-11	CERAMIC	0.1uF		50V
C889	1-126-233-11	ELECT	22uF	20%	50V
		< CONNECTOR >			
* CN801	1-568-832-11	SOCKET, CONNECTOR 13P			
CN803	1-691-767-11	PLUG (MICRO CONNECTOR) 5P			

Ref. No.	Part No.	Description			Remark
		< DIODE >			
D801	8-719-987-63	DIODE 1N4148M			
D802	8-719-987-63	DIODE 1N4148M			
D821	8-719-987-63	DIODE 1N4148M			
D822	8-719-987-63	DIODE 1N4148M			
D823	8-719-987-63	DIODE 1N4148M			
D831	8-719-987-63	DIODE 1N4148M			
D832	8-719-987-63	DIODE 1N4148M			
D833	8-719-987-63	DIODE 1N4148M			
D851	8-719-987-63	DIODE 1N4148M			
D881	8-719-987-63	DIODE 1N4148M			
		< IC >			
IC801	8-749-900-24	IC STK-4162MK2			
IC831	8-749-920-13	IC STK-4132MK2			
		< TRANSISTOR >			
Q801	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA			
Q821	8-729-900-63	TRANSISTOR DTA124ES			
Q822	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q823	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q824	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q825	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q826	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q827	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q831	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA			
Q851	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA			
Q881	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA			
Q891	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q892	8-729-900-36	TRANSISTOR DTC124ES			
		< RESISTOR >			
R801	1-249-417-11	CARBON	1K	5%	1/4W
R802	1-249-438-11	CARBON	56K	5%	1/4W
R803	1-249-414-11	CARBON	560	5%	1/4W
R804	1-249-438-11	CARBON	56K	5%	1/4W
R805	1-260-103-11	CARBON	2.2K	5%	1/2W
R806	1-260-103-11	CARBON	2.2K	5%	1/2W
⚠R807	1-212-881-11	FUSIBLE	100	5%	1/4W F
⚠R808	1-217-151-00	METAL PLATE	0.22	10%	2W F
R809	1-260-076-11	CARBON	10	5%	1/2W
⚠R810	1-212-849-00	FUSIBLE	4.7	5%	1/4W F
R811	1-249-417-11	CARBON	1K	5%	1/4W
R812	1-249-431-11	CARBON	15K	5%	1/4W
R813	1-249-441-11	CARBON	100K	5%	1/4W
R814	1-260-103-11	CARBON	2.2K	5%	1/2W
R815	1-260-103-11	CARBON	2.2K	5%	1/2W
R816	1-260-103-11	CARBON	2.2K	5%	1/2W
R817	1-260-103-11	CARBON	2.2K	5%	1/2W
R818	1-249-437-11	CARBON	47K	5%	1/4W
R819	1-249-441-11	CARBON	100K	5%	1/4W
R822	1-249-441-11	CARBON	100K	5%	1/4W

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remark
R823	1-249-429-11	CARBON	10K	5%	1/4W
R824	1-249-441-11	CARBON	100K	5%	1/4W
R825	1-249-441-11	CARBON	100K	5%	1/4W
R826	1-249-425-11	CARBON	4.7K	5%	1/4W
R827	1-249-441-11	CARBON	100K	5%	1/4W
R828	1-249-425-11	CARBON	4.7K	5%	1/4W
R829	1-249-429-11	CARBON	10K	5%	1/4W
R831	1-249-417-11	CARBON	1K	5%	1/4W
R832	1-249-438-11	CARBON	56K	5%	1/4W
R833	1-249-412-11	CARBON	390	5%	1/4W
R834	1-249-438-11	CARBON	56K	5%	1/4W
R835	1-260-103-11	CARBON	2.2K	5%	1/2W
R836	1-260-103-11	CARBON	2.2K	5%	1/2W
⚠R838	1-217-151-00	METAL PLATE	0.22	10%	2W F
R839	1-260-076-11	CARBON	10	5%	1/2W
⚠R840	1-212-849-00	FUSIBLE	4.7	5%	1/4W F
R841	1-249-417-11	CARBON	1K	5%	1/4W
R842	1-249-431-11	CARBON	15K	5%	1/4W
R843	1-249-441-11	CARBON	100K	5%	1/4W
R844	1-260-099-11	CARBON	1K	5%	1/2W
R845	1-260-099-11	CARBON	1K	5%	1/2W
R846	1-249-441-11	CARBON	100K	5%	1/4W
R847	1-249-441-11	CARBON	100K	5%	1/4W
R848	1-249-437-11	CARBON	47K	5%	1/4W
R849	1-249-433-11	CARBON	22K	5%	1/4W
R851	1-249-417-11	CARBON	1K	5%	1/4W
R852	1-249-438-11	CARBON	56K	5%	1/4W
R853	1-249-414-11	CARBON	560	5%	1/4W
R854	1-249-438-11	CARBON	56K	5%	1/4W
R855	1-260-103-11	CARBON	2.2K	5%	1/2W
R856	1-260-103-11	CARBON	2.2K	5%	1/2W
⚠R857	1-212-881-11	FUSIBLE	100	5%	1/4W F
⚠R858	1-217-151-00	METAL PLATE	0.22	10%	2W F
R859	1-260-076-11	CARBON	10	5%	1/2W
R861	1-249-417-11	CARBON	1K	5%	1/4W
R862	1-249-431-11	CARBON	15K	5%	1/4W
R863	1-249-441-11	CARBON	100K	5%	1/4W
R868	1-249-438-11	CARBON	56K	5%	1/4W
⚠R871	1-212-857-00	FUSIBLE	10	5%	1/4W F
R881	1-249-417-11	CARBON	1K	5%	1/4W
R882	1-249-438-11	CARBON	56K	5%	1/4W
R883	1-249-412-11	CARBON	390	5%	1/4W
R884	1-249-438-11	CARBON	56K	5%	1/4W
R885	1-260-103-11	CARBON	2.2K	5%	1/2W
R886	1-260-103-11	CARBON	2.2K	5%	1/2W
⚠R888	1-217-151-00	METAL PLATE	0.22	10%	2W F
R889	1-260-076-11	CARBON	10	5%	1/2W
R891	1-249-417-11	CARBON	1K	5%	1/4W
R892	1-249-431-11	CARBON	15K	5%	1/4W
R893	1-249-441-11	CARBON	100K	5%	1/4W
R894	1-249-441-11	CARBON	100K	5%	1/4W
R895	1-249-441-11	CARBON	100K	5%	1/4W

Ref. No.	Part No.	Description			Remark
R896	1-247-864-11	CARBON	24K	5%	1/4W
R898	1-249-438-11	CARBON	56K	5%	1/4W
		< RELAY >			
RY801	1-515-920-11	RELAY (24V)			
RY831	1-515-920-11	RELAY (24V)			
RY833	1-515-360-21	RELAY			
		< THERMISTOR >			
TH891	1-807-796-11	THERMISTOR			
**********					
*	1-659-631-11	PRIMARY BOARD			
		**********			
	1-533-217-31	HOLDER, FUSE			
		< CAPACITOR >			
⚠C991	1-113-925-11	ELECT	0.01uF	20%	250V
		< CONNECTOR >			
CN901	1-564-321-00	PIN, CONNECTOR 2P			
* CN904	1-564-518-11	PLUG, CONNECTOR 3P			
CN991	1-580-230-11	PIN, CONNECTOR (PC BOARD) 2P			
CN992	1-580-230-11	PIN, CONNECTOR (PC BOARD) 2P			
		< DIODE >			
D991	8-719-987-63	DIODE 1N4148M			
		< FUSE >			
⚠F901	1-532-503-51	FUSE,TIME LAG(1.6A,250V)			
⚠F903	1-532-464-51	FUSE,TIME LAG(2.5A,250V)			
⚠F902	1-532-465-51	FUSE,TIME LAG(3.15A,250V)(SP,HK)			
		< RELAY >			
⚠RY991	1-755-065-11	RELAY			
		< SWITCH >			
⚠S901	1-572-675-11	SWITCH, POWER VOLTAGE CHANGE (VOLTAGE SELECTOR)(SP,HK)			
		< TRANSFORMER >			
⚠T901	1-429-409-11	TRANSFORMER,POWER(AEP,G,IT)			
⚠T901	1-429-410-11	TRANSFORMER,POWER(SP,HK)			
**********					

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

REG SECONDARY SPEAKER

Ref. No.	Part No.	Description			Remark
*	1-661-106-11	REG BOARD			
		**********			
		< CAPACITOR >			
C921	1-164-159-11	CERAMIC	0.1uF		50V
C922	1-126-177-11	ELECT	100uF	20%	10V
C923	1-164-159-11	CERAMIC	0.1uF		50V
C924	1-124-635-00	ELECT	220uF	20%	6.3V
C925	1-124-635-00	ELECT	220uF	20%	6.3V
C971	1-164-159-11	CERAMIC	0.1uF		50V
C972	1-126-177-11	ELECT	100uF	20%	10V
		< DIODE >			
D921	8-719-024-99	DIODE 11ES2-NTA2B			
		< IC >			
IC921	8-759-604-86	IC M5F7807L			
IC922	8-759-231-53	IC TA7805S			
IC971	8-759-604-90	IC M5F7907L			
**********					
*	1-659-632-11	SECONDARY BOARD			
		***************			
		< CONNECTOR >			
CN902	1-691-767-31	PLUG (MICRO CONNECTOR) 5P			
CN903	1-691-769-31	PLUG (MICRO CONNECTOR) 7P			
**********					
*	A-4389-092-A	SPEAKER BOARD, COMPLETE(AEP,G,IT)			
		**********			
*	A-4389-101-A	SPEAKER BOARD, COMPLETE(SP,HK)			
		**********			
		< CAPACITOR >			
C671	1-126-059-11	ELECT	10uF	20%	50V
C751	1-126-012-11	ELECT	470uF	20%	16V
C752	1-126-012-11	ELECT	470uF	20%	16V
C753	1-126-059-11	ELECT	10uF	20%	50V
C754	1-126-052-11	ELECT	100uF	20%	10V
C755	1-126-059-11	ELECT	10uF	20%	50V
C756	1-126-059-11	ELECT	10uF	20%	50V
C1001	1-136-153-00	FILM	0.01uF	5%	50V
C1002	1-136-153-00	FILM	0.01uF	5%	50V
C1003	1-136-153-00	FILM	0.01uF	5%	50V
C1004	1-136-153-00	FILM	0.01uF	5%	50V
C1005	1-162-306-11	CERAMIC	0.01uF	30%	16V
C1006	1-162-306-11	CERAMIC	0.01uF	30%	16V
C1007	1-162-306-11	CERAMIC	0.01uF	30%	16V
C1008	1-162-306-11	CERAMIC	0.01uF	30%	16V
C1009	1-162-306-11	CERAMIC	0.01uF	30%	16V
C1010	1-162-306-11	CERAMIC	0.01uF	30%	16V
C1011	1-164-159-11	CERAMIC	0.1uF		50V
		< CONNECTOR >			
* CN1001	1-564-520-11	PLUG, CONNECTOR 5P			
* CN1002	1-564-521-11	PLUG, CONNECTOR 6P			
* CN1003	1-564-518-11	PLUG, CONNECTOR 3P			
* CN1004	1-568-850-11	SOCKET, CONNECTOR 7P			
		< DIODE >			
D671	8-719-987-63	DIODE 1N4148M			
D672	8-719-987-63	DIODE 1N4148M			
D673	8-719-987-63	DIODE 1N4148M			
D674	8-719-987-63	DIODE 1N4148M			
D675	8-719-987-63	DIODE 1N4148M			
		< IC >			
IC751	8-759-140-53	IC uPD4053BC			
		< JACK >			
J751	1-565-934-11	JACK, PIN 2P(VIDEO1 IN,MONITOR OUT)			
J752	1-565-934-11	JACK, PIN 2P(VIDEO2 IN,VIDEO1 OUT)			
J1001	1-569-662-11	JACK, PIN 1P(SUPER WOOFER)			
		< COIL >			
L751	1-408-405-00	INDUCTOR 4.7uH			
L1001	1-420-872-00	COIL, AIR-CORE			
L1002	1-420-872-00	COIL, AIR-CORE			
L1003	1-420-872-00	COIL, AIR-CORE			
L1004	1-420-872-00	COIL, AIR-CORE			
L1005	1-420-872-00	COIL, AIR-CORE			
		< TRANSISTOR >			
Q671	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q672	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q673	8-729-118-00	TRANSISTOR 2SB1116-L			
Q674	8-729-118-00	TRANSISTOR 2SB1116-L			
Q751	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q752	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q753	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q754	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q755	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q756	8-729-119-78	TRANSISTOR 2SC403SP-51			
		< RESISTOR >			
R671	1-249-441-11	CARBON	100K	5%	1/4W
R672	1-249-441-11	CARBON	100K	5%	1/4W
R673	1-249-441-11	CARBON	100K	5%	1/4W
R674	1-249-441-11	CARBON	100K	5%	1/4W
R675	1-249-441-11	CARBON	100K	5%	1/4W
R676	1-249-429-11	CARBON	10K	5%	1/4W
R677	1-249-429-11	CARBON	10K	5%	1/4W

Ref. No.	Part No.	Description			Remark
R678	1-260-096-11	CARBON	560	5%	1/2W
R679	1-260-096-11	CARBON	560	5%	1/2W
R680	1-260-096-11	CARBON	560	5%	1/2W
R681	1-260-096-11	CARBON	560	5%	1/2W
R682	1-249-441-11	CARBON	100K	5%	1/4W
R751	1-249-409-11	CARBON	220	5%	1/4W
R752	1-249-409-11	CARBON	220	5%	1/4W
R753	1-249-418-11	CARBON	1.2K	5%	1/4W
R754	1-249-417-11	CARBON	1K	5%	1/4W
R755	1-249-421-11	CARBON	2.2K	5%	1/4W
R756	1-249-411-11	CARBON	330	5%	1/4W
R757	1-249-433-11	CARBON	22K	5%	1/4W
R758	1-249-429-11	CARBON	10K	5%	1/4W
R759	1-249-441-11	CARBON	100K	5%	1/4W
R760	1-249-441-11	CARBON	100K	5%	1/4W
R761	1-249-417-11	CARBON	1K	5%	1/4W
R762	1-249-417-11	CARBON	1K	5%	1/4W
R763	1-247-804-11	CARBON	75	5%	1/4W
R764	1-247-804-11	CARBON	75	5%	1/4W
R765	1-249-413-11	CARBON	470	5%	1/4W
R766	1-247-804-11	CARBON	75	5%	1/4W
R767	1-247-804-11	CARBON	75	5%	1/4W
R768	1-249-413-11	CARBON	470	5%	1/4W
R1001	1-260-076-11	CARBON	10	5%	1/2W
R1002	1-260-076-11	CARBON	10	5%	1/2W
R1003	1-260-076-11	CARBON	10	5%	1/2W
R1004	1-260-076-11	CARBON	10	5%	1/2W
R1005	1-260-076-11	CARBON	10	5%	1/2W
R1006	1-260-076-11	CARBON	10	5%	1/2W
R1007	1-260-076-11	CARBON	10	5%	1/2W
R1008	1-260-076-11	CARBON	10	5%	1/2W
R1009	1-260-076-11	CARBON	10	5%	1/2W
R1010	1-260-076-11	CARBON	10	5%	1/2W
R1011	1-249-421-11	CARBON	2.2K	5%	1/4W
R1012	1-249-437-11	CARBON	47K	5%	1/4W
R1013	1-249-437-11	CARBON	47K	5%	1/4W
R1014	1-249-437-11	CARBON	47K	5%	1/4W
		< TERMINAL >			
TM1001	1-537-822-21	TERMINAL BOARD(FRONT SPEAKER)			
TM1002	1-537-336-41	TERMINAL BOARD (REAR SPEAKEAR,CENTER SPEAKER)			
**********					
*	1-659-629-11	VOL BOARD **********			
		< CAPACITOR >			
C791	1-164-159-11	CERAMIC	0.1uF		50V
		< CONNECTOR >			
* CN791	1-568-834-11	SOCKET, CONNECTOR 15P			

Ref. No.	Part No.	Description			Remark
		< RESISTOR >			
R791	1-249-411-11	CARBON	330	5%	1/4W
R792	1-249-441-11	CARBON	100K	5%	1/4W
		< VARIABLE RESISTOR >			
RV791	1-223-809-11	RES, VAR, CARBON 100KX4(VOLUME)			
**********					
		MISCELLANEOUS **********			
4	1-773-004-11	WIRE (FLAT TYPE)(15 CORE)			
11	1-777-115-11	WIRE (FLAT TYPE)(29 CORE)			
12	1-769-910-11	WIRE (FLAT TYPE)(9 CORE)			
* 101	1-776-530-11	CORD (WITH CONNECTOR)			
110	1-769-972-11	WIRE (FLAT TYPE)(13 CORE)			
115	1-769-882-11	WIRE (FLAT TYPE)(7 CORE)			
119	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (HK)			
120	1-569-008-11	ADAPTER, CONVERSION 2P (SP)			
⚠CN998	1-526-794-11	OUTLET, AC			
⚠CN999	1-526-794-11	OUTLET, AC			
⚠CNP901	1-575-651-11	CORD, POWER			
⚠F901	1-532-503-51	FUSE, TIME LAG (1.6A, 250V)			
⚠F902	1-532-465-51	FUSE, TIME LAG (3.15A, 250V)(SP,HK)			
⚠F903	1-532-464-51	FUSE, TIME LAG (2.5A, 250V)			
⚠F911	1-532-388-51	FUSE, TIME LAG (2A, 250V)			
⚠F912	1-532-388-51	FUSE, TIME LAG (2A, 250V)			
⚠F913	1-532-506-51	FUSE, TIME LAG (6.3A, 250V)			
⚠F914	1-532-506-51	FUSE, TIME LAG (6.3A, 250V)			
FAN601	1-698-209-11	MOTOR, DC FAN			
FL701	1-517-494-11	INDICATOR TUBE, FLUORESCENT			
⚠T901	1-429-409-11	TRANSFORMER, POWER (AEP,G,IT)			
⚠T901	1-429-410-11	TRANSFORMER, POWER (SP,HK)			
**********					
		ACCESSORIES & PACKING MATERIALS **********			
*	4-980-537-01	CUSHION (UPPER)			
*	4-980-538-01	CUSHION (LOWER)			
**********					
		********** HARDWARE LIST **********			
#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S			
#2	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S			
#3	7-685-871-01	SCREW +BVTT 3X6 (S)			
#4	7-685-650-79	SCREW +BVTP 3X16 TYPE2 IT-3			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

9-960-636-11

Sony Corporation
Consumer A&V Products Company
Home A&V Products Div.

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Quality Engineering Dept.

CDP-EX100

SERVICE MANUAL

AEP Model
UK Model
E Model

This set is the CD player section in
MHC-EX50/EX70AV/EX100AV.

Model Name Using Similar Mechanism	CDP-EX10
CD Mechanism Type	CDM28-5BD19
Base Unit Name	BU-5BD19

SPECIFICATIONS

CD player

System: Compact disc and digital audio system

Laser: Semiconductor laser (λ=780 nm)
Emission duration: continuous

Laser output: Max 44.6 µW*
* This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with 7 mm aperture.

Wavelength: 780 – 790 nm

Frequence response: 2 Hz – 20 kHz (±0.5 dB)

Signal-to-noise ratio: More than 105 dB

Dynamic range: More than 95 dB

Outputs

CD OUT (phono jacks):
Output level 2 V (at 50 kilohms)
Load impedance over 10 kilohms

CD DIGITAL OPTICAL OUT (Square optical connector jack, rear panel):
wave length 660 nm
output level –18 dBm

Dimensions
Approx. 280 x 82.5 x 280 mm (11 1/8 x 3 1/4 x 11 1/8 in) (w/h/d) incl. projecting parts and controls

Mass: Approx. 2.1 kg (4 lb 10 oz)

Design and specifications are subject to change without notice.

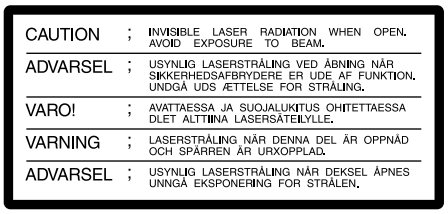
MICROFILM

COMPACT DISC PLAYER

SONY®

The laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

The following caution label is located inside of the unit.


CAUTION ; INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
ADVARSEL ; USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDS ÆTTELSE FOR STRÅLING.
VARO! ; AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA LASERSÄTEILYLLE.
VARNING ; LASERSTRÅLING NÄR DENNA DEL ÄR OPPNÅD OCH SPÄRREN ÄR URXOPPLAD.
ADVARSEL ; USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN.

This appliance is classified as a CLASS 1 LASER product.
The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Notes on Chip Component Replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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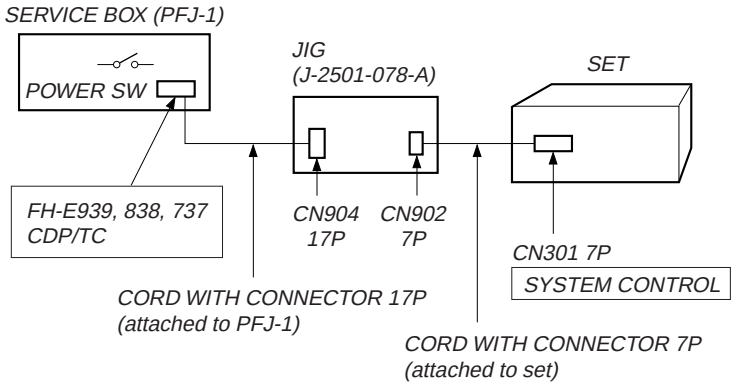
SECTION 1
SERVICE NOTE

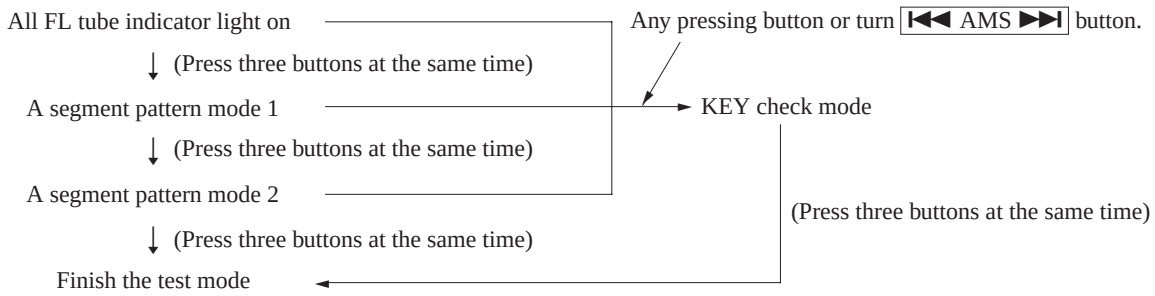
• How to operate with a single unit

Normally this set does not operate with a single unit.
When you must be mending, connect to other unit.
If the SYSTEM POWER switch of the amplifire is set to ON, the power supply of the set is turned on.
In case of other unit is nothing, the service box (PFJ-1) and exclusive jig (J-2501-078-A) are necessary to operate the set with a single unit.
In case of above mentioned, press the ■ button and TIME button at the same time, to enter the power on.



• FL tube/ KEY check mode

After to enter the power on, when ■ button, TIME button and ▶▶ button are pressed at the same time, you will be check FL tube.
Whenever press the above mentioned three buttons at the same time, change to check mode of FL tube.
Under check mode of FL tube when any pressing button or turn I◀◀ AMS ▶▶I button, change to KEY check mode.
To finish KEY check mode, press the above mentioned three buttons at the same time.


All FL tube indicator light on
(Press three buttons at the same time)
A segment pattern mode 1
(Press three buttons at the same time)
A segment pattern mode 2
(Press three buttons at the same time)
Finish the test mode
Any pressing button or turn I◀◀ AMS ▶▶I button.
KEY check mode
(Press three buttons at the same time)

Note 1)

All FL tube light on mode is kept when three buttons which is pressed to enter all FL tube light on mode, release at the same time. If you will be release failure them, it is moved to KEY check mode after all FL tube light on mode.

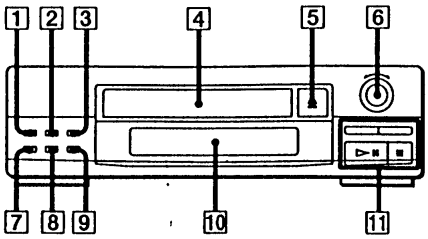
Note 2)

Under KEY check mode, every time and button pressed or I◀◀ AMS ▶▶I button turned on, figure on " KEY= " of FL tube is increased.

SECTION 2
GENERAL

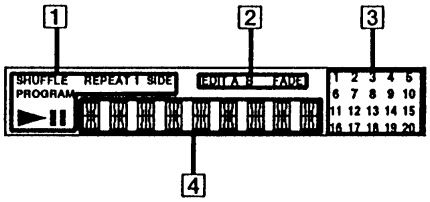
This section is extracted from instruction manual.

Front Panel



1 PLAY MODE button (8, 15)
2 REPEAT button (9)
3 TIME button (7)
4 Disc tray (7)
5 ⏏ OPEN/CLOSE button (open/close of the disc tray) (7, 13)
6 ⏮ AMS ⏭ control (8, 15)
7 EDIT button (14, 15)
8 CHECK button (9, 15)
9 CLEAR button (9)
10 Display window (7, 14, 15)
11 CD player operating buttons
◀◀/▶▶ (manual search) (8)
▷II (play/pause) (7, 14)
■ (stop) (7, 13)

Display Window

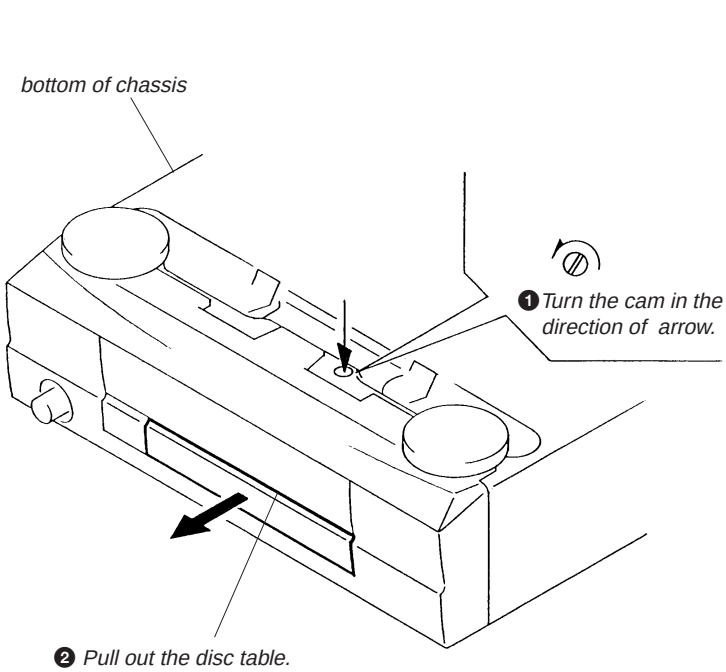


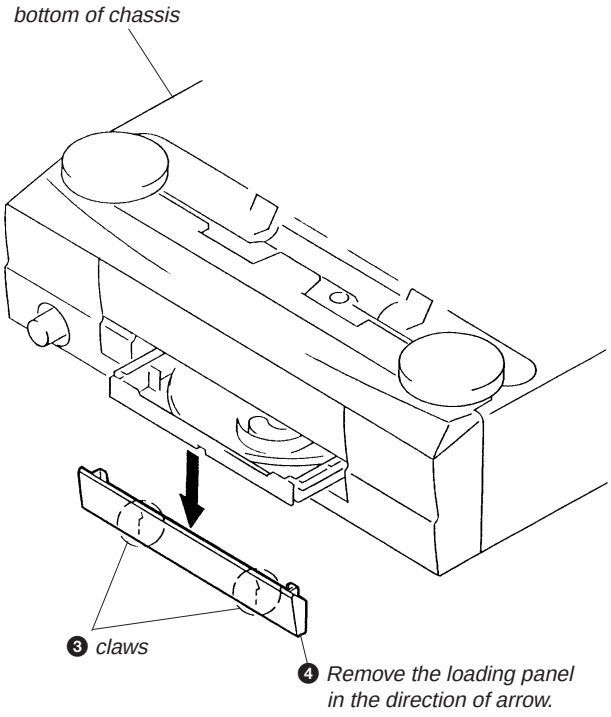
1 CD play mode indication (7)
2 CD edit mode indication (14)
3 Music calendar (7, 14)
4 Step/track number/playing time indication (7, 9, 14)

SECTION 3
DISASSEMBLY

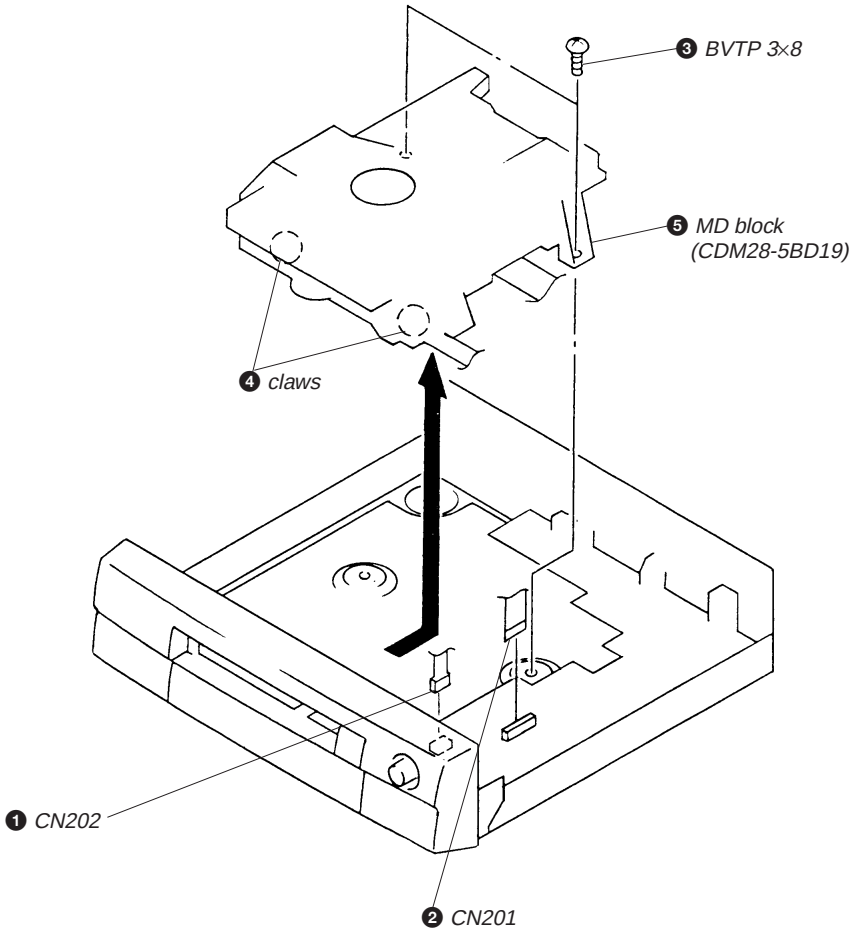
Note : Follow the disassembly procedure in the numerical order given.

3-1. LOADING PANEL

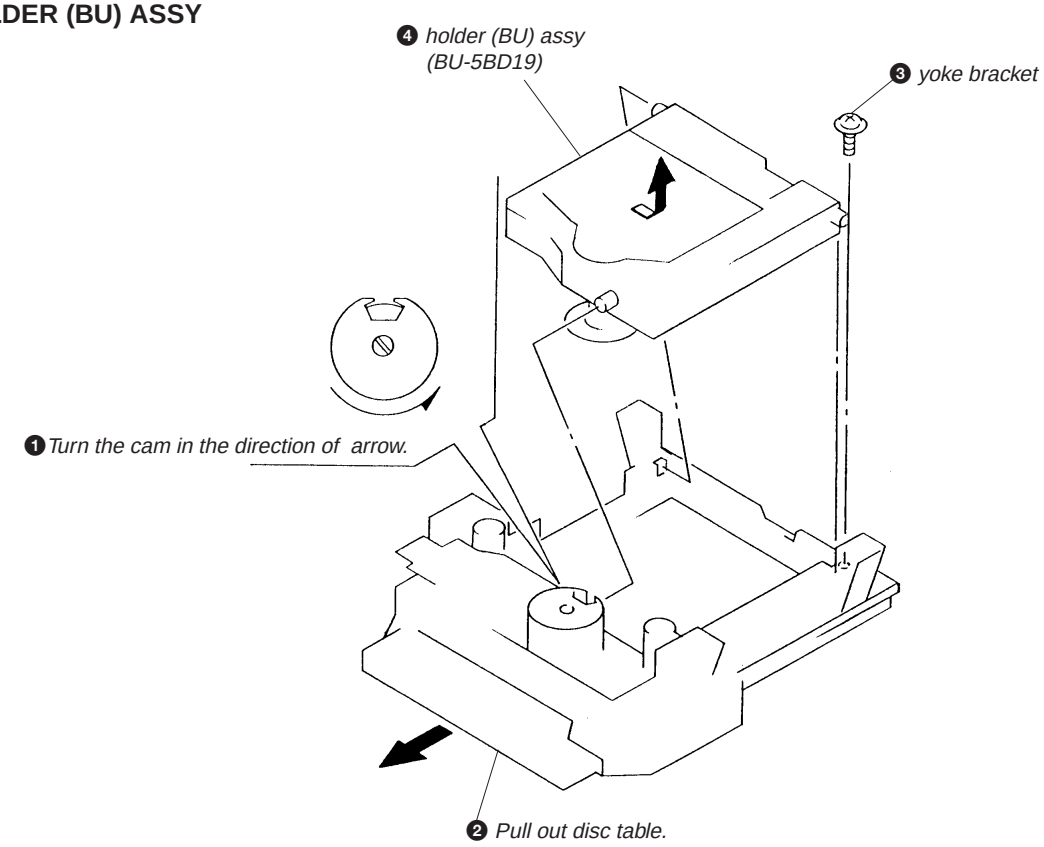




3-2. MD BLOCK



3-3. HOLDER (BU) ASSY

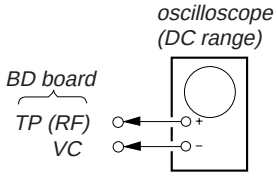


SECTION 4
ELECTRICAL ADJUSTMENTS

Note :

1. Basically designed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use an oscilloscope with more than 10MΩ impedance.
4. Clean the objective lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.
5. Adjust the focus bias adjustment when optical block is replaced.

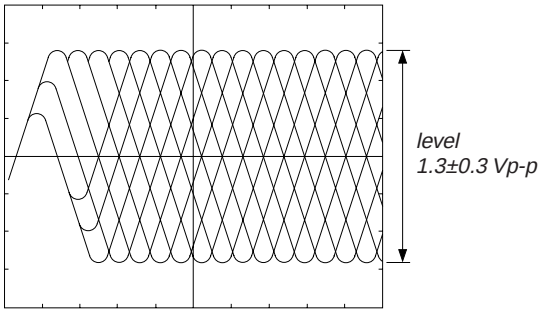
Focus Bias Adjustment



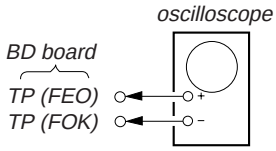
Procedure:

1. Connect oscilloscope to test point TP (RF). (GND terminal : VC)
2. Turn Power switch on.
3. Put disc (YEDS-18) in and playback.
4. Adjust RV101 so that the waveform is clear.
   (Clear RF signal waveform means that the shape " ◇ " can be clearly distinguished at the center of the waveform.)
5. After adjustment, check the RF signal level.

- RF signal
  VOLT/DIV : 200 mV
  TIME/DIV : 500 nS



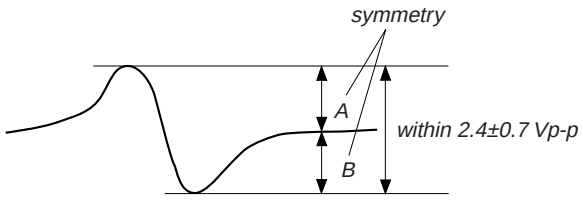
S Curve Check



Procedure:

1. Connect oscilloscope to test point TP(FEO).
2. Connect between test point TP(FOK)and GND by lead wire.
3. Turn Power switch on.
4. Put disc (YEDS-18) in and turnd Power switch on again and actuate the focus search. (In case of using SERVICE BOX actuate the focus search when disc table is moving in and out.)
5. Check the oscillosope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 2.4±0.7 Vp-p.

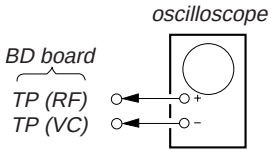
S-curve waveform



6. After check, remove the lead wire connected in step 2.

Note :
- Try to measure several times to make sure than the ratio of A:B or B:A is more than 10:7.
- Take sweep time as long as possible and light up the brightness to obtain best waveform.

RF Level Check



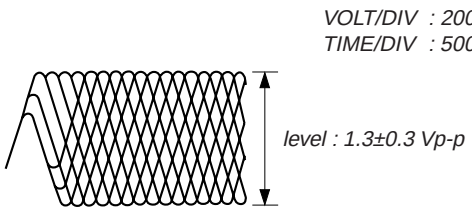
Procedure:

1. Connect oscilloscope to test point TP (RF) on BD board.
2. Turn Power switch on.
3. Put disc (YEDS-18) in and playback.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

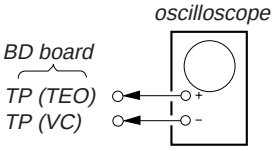
Note :

Clear RF signal waveform means that the shape " ◇ " can be clearly distinguished at the center of the waveform.

RF signal waveform



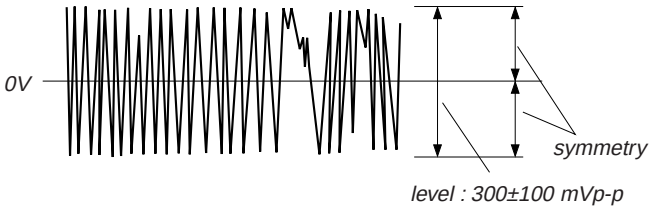
E-F Balance Check



Procedure:

1. Connect oscilloscpe to test point TP (TEO).
2. Turn Power switch on.
3. Connect pin ㉔ of IC60I on the PANEL board to GND with a lead wire.
4. Put disc (YEDS-18) in and playback.
5. Push TIME button.
6. Confirm that the oscilloscope waveform is symmetrical on the top and bottom in relation to 0Vdc, and check this level.

Traverse waveform



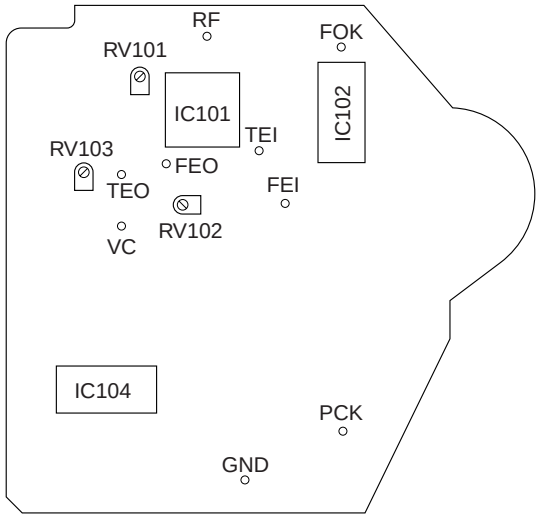
7.Remove the lead wire connected in step 3.

Focus/Tracking Gain Adjustment (RV102, 103)

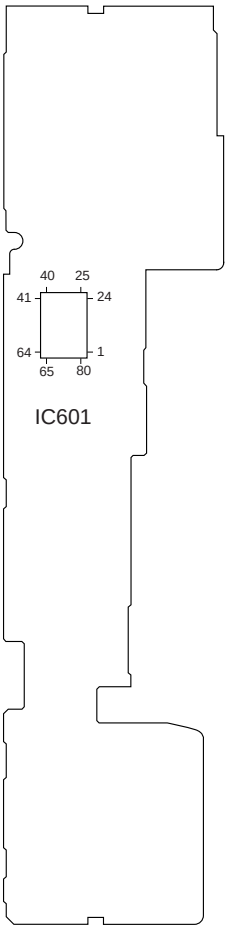
This gain has a margin, so even if it is slightly off.
There is no problem.
Therefore, do not perform this adjustment.
Please note that it should be fixed to mechanical center position when you moved and do not know original position.

Adjustment Location :

[BD BOARD] (Conductor Side)



[PANEL BOARD] (Conductor Side)



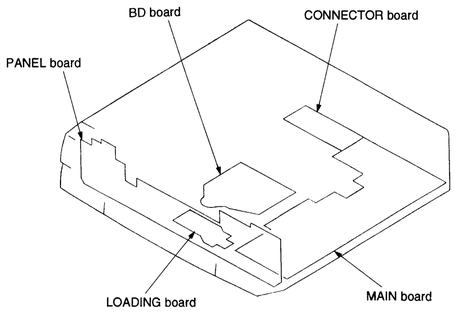
SECTION 5
DIAGRAMS

5-1. IC PIN FUNCTION

• IC601 μPD78044AGF (SYSTEM CONTROL, FL DRIVER)

Pin No.	Pin Name	I/O	Function
1-7	T6-T0	O	FL display grid output
8	VDD	—	+5V power supply
9	CLK	O	Serial clock output to DSP (CXD2507AQ).
10	DATA	O	Serial data output to DSP (CXD2507AQ).
11	—	—	Fixed at Ground.
12	XLAT	O	Serial data latch pulse output to DSP (CXD2507AQ).
13	PRGL	O	Serial data latch pulse output to D/F DAC (PCM1710U).
14	SQCLK	O	Sub code Q data read clock output to DSP (CXD2507AQ).
15	—	—	Not used. (Open)
16	SUBQ	I	Sub code Q data input from DSP (CXD2507AQ).
17	RESET	I	System reset input (“ L ”= Active)
18	INSW	I	S292 (load in switch) input
19	OUTSW	I	S291 (load out switch) input
20	AVSS	—	Ground
21	LDOUT	O	Output for rotating M903 (loading motor) in the loading out direction.
22	LDIN	O	Output for rotating M903 (loading motor) in the loading in direction.
23	ADJ	I	Test mode input. (“ L ”= Stops GFS check)
24	AFADJ	I	Test mode input. Fixed at “H”. (“ L ”= Test mode)
25	MODE	I	Not used. (Fixed at “ H ”.)
26-28	KEY2-KEY0	I	Key AD input
29	AVDD	—	+5V power supply
30	AVREF	—	+5V power supply
31	—	—	Fixed at Ground.
32	—	—	Not used. (Open)
33	VSS	—	Ground
34	X1	I	Clock input (5MHz)
35	X2	O	Clock output (5MHz)
36	BDRST	O	BD reset output
37	BDPOWER	O	BD power ON/OFF output
38	—	—	Not used. (Open)
39	SENS	I	SENS input from DSP (CXD2507AQ).
40	AMUTE	O	Not used. (Open)
41	FSW	O	Focus switch output
42	BSOUT	O	Audio bus output
43	—	—	Not used. (Open)
44	SCOR	I	Sub code sync S0+S1 detection input
45	JOG1	I	JOG input
46	—	—	Not used. (Open)
47	BSIN	I	Audio bus input
48	IC (VPP)	—	Connected to Ground.
49	JOG0	I	JOG input
50, 51	—	—	Not used. (Open)
52	VDD	—	+5V power supply
53-70	S22-S5	O	FL display segment output
71	VLOAD	—	-28V power supply for driving FL display.
72-76	S4-S0	O	FL display segment output
77-80	T10-T7	O	FL display grid output

5-2. CIRCUIT BOARDS LOCATION



• Semiconductor Location

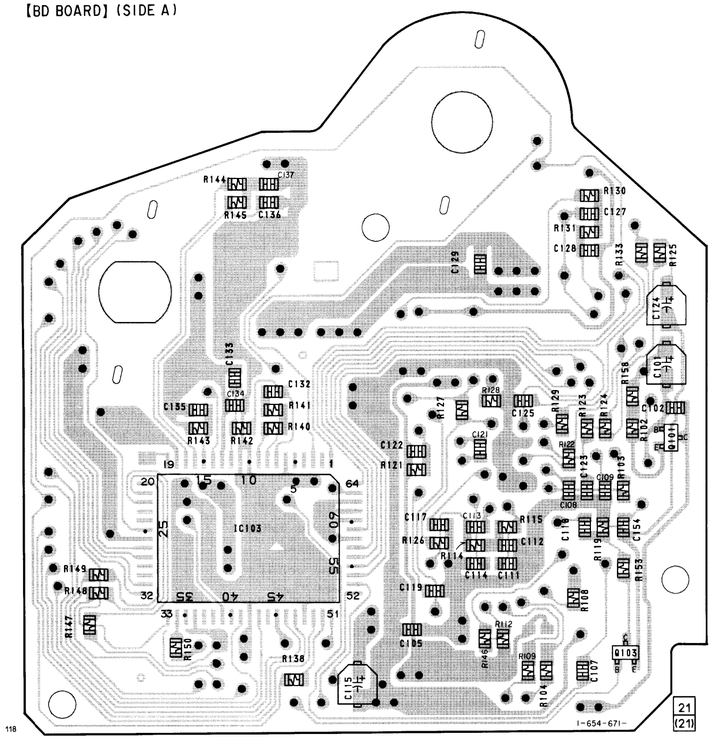
Ref. No.	Location
IC101	E-9
IC102	C-9
IC103	E-3
IC104	F-12
Q101	E-7
Q102	E-8
Q103	F-6

Note :

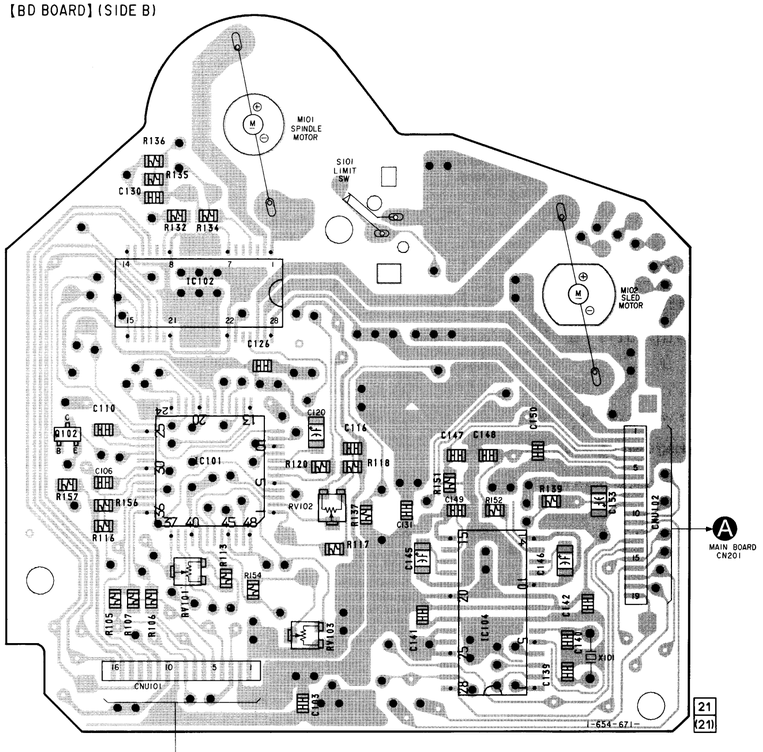
- ● : Through hole.
- ▨ : Pattern on the side which is seen.
  (The other layer's patterns are not indicated.)

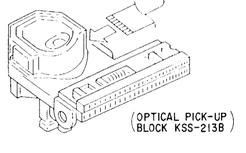
5-3. PRINTED WIRING BOARD — BD SECTION —

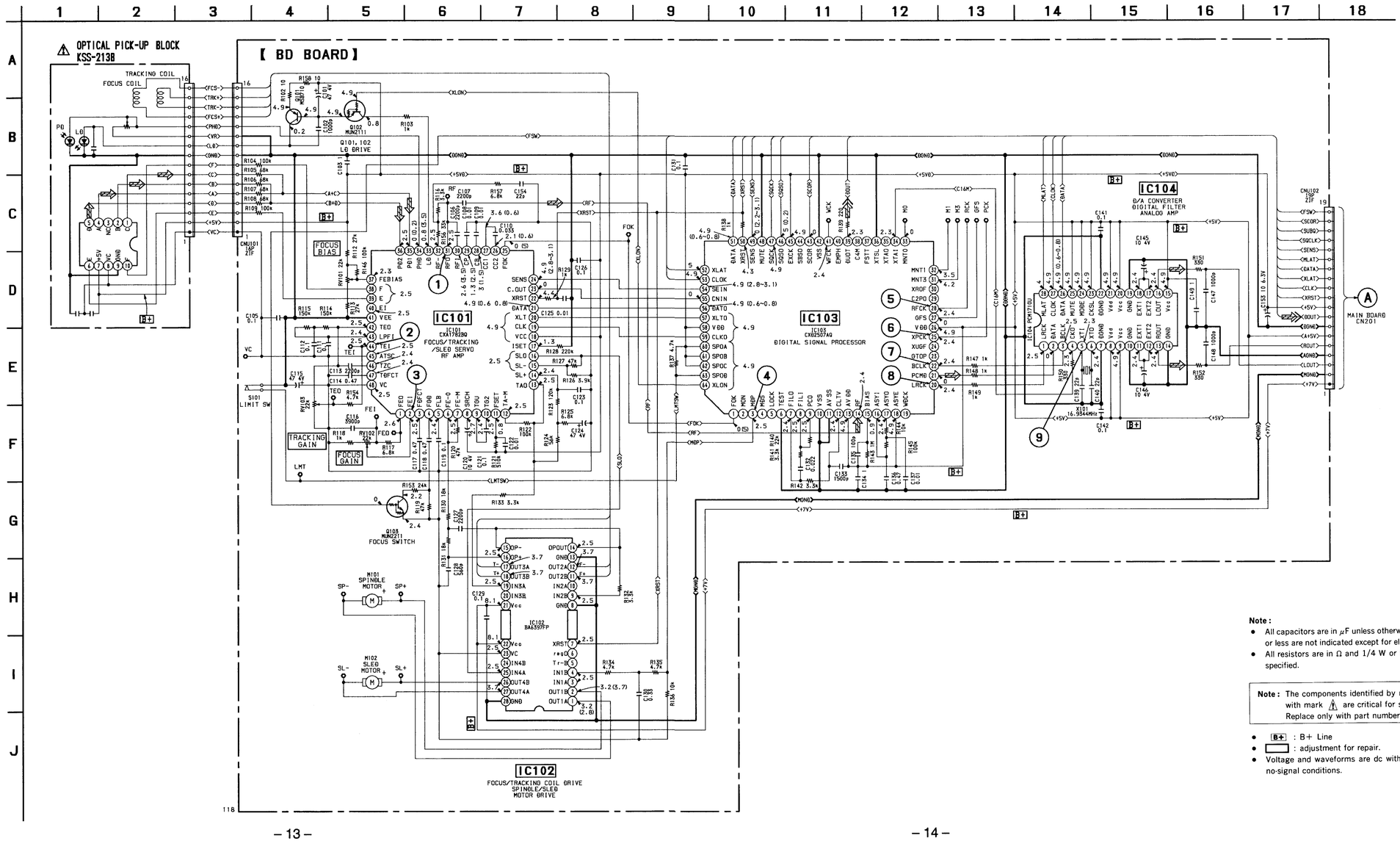
【BD BOARD】(SIDE A)



【BD BOARD】(SIDE B)







• Waveforms

① IC101 (31) pin 1.4Vp-p

② IC101 (44) pin 8mVp-p 0.2ms/DIV

③ IC101 (2) pin 20mVp-p 2ms/DIV

④ IC103 (3) pin 2.4Vp-p 7.5µsec

⑤ IC103 (28) pin 5.1mVp-p 137µsec

⑥ IC103 (25) pin 5.1Vp-p 232.7sec

⑦ IC103 (22) pin 5.1Vp-p 472.7nsec

⑧ IC103 (20) pin 5.1Vp-p 23µsec

⑨ IC104 (5) pin 3Vp-p 16.9344MHz

Note :

- All capacitors are in µF unless otherwise noted. pF : µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

- B+ : B+ Line
- ▭ : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.

- no mark: STOP
  ( ): PLAY
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD
  ⇛ : digital out

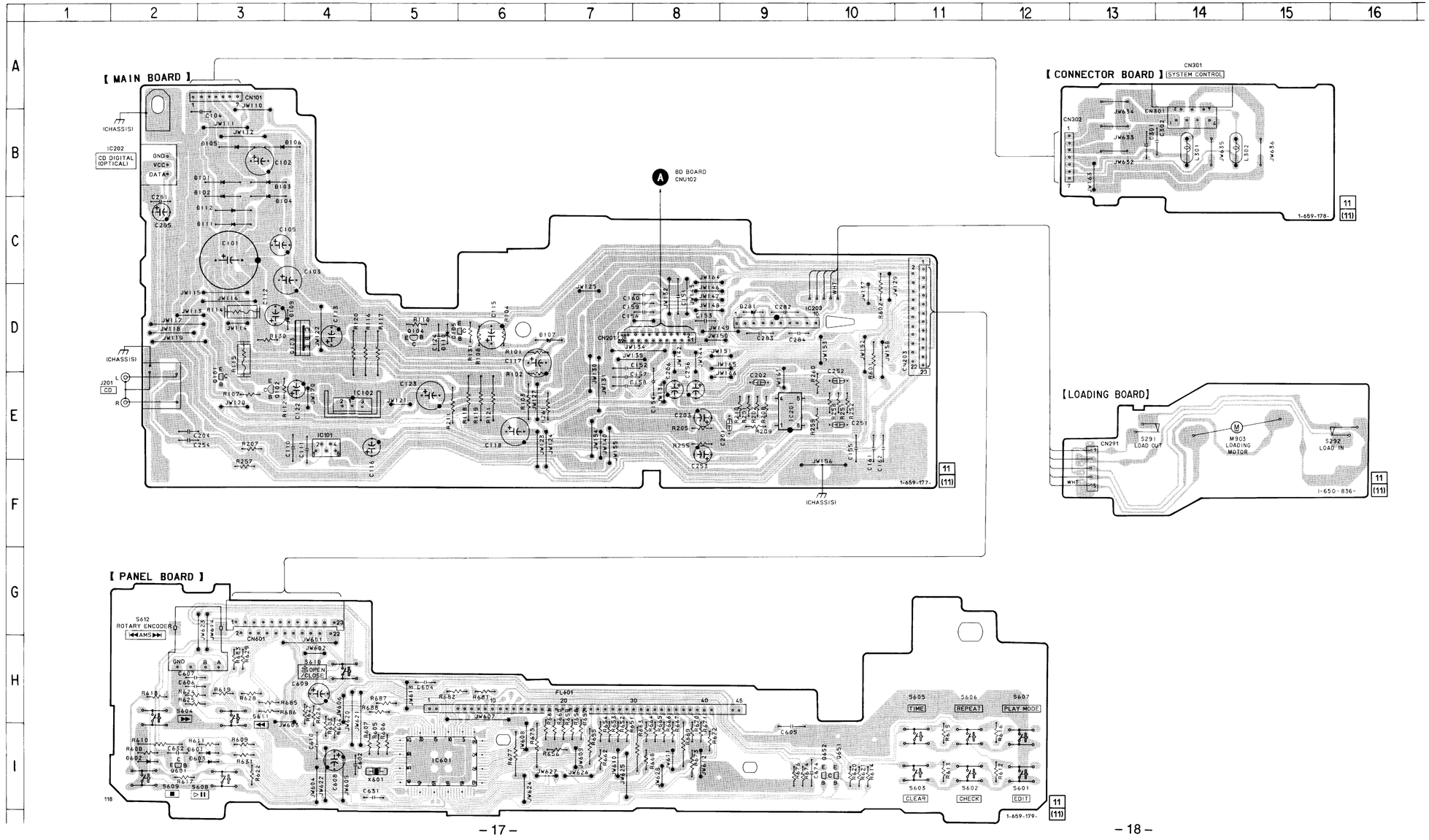
5-5. PRINTED WIRING BOARDS — MAIN SECTION —

• Semiconductor Location

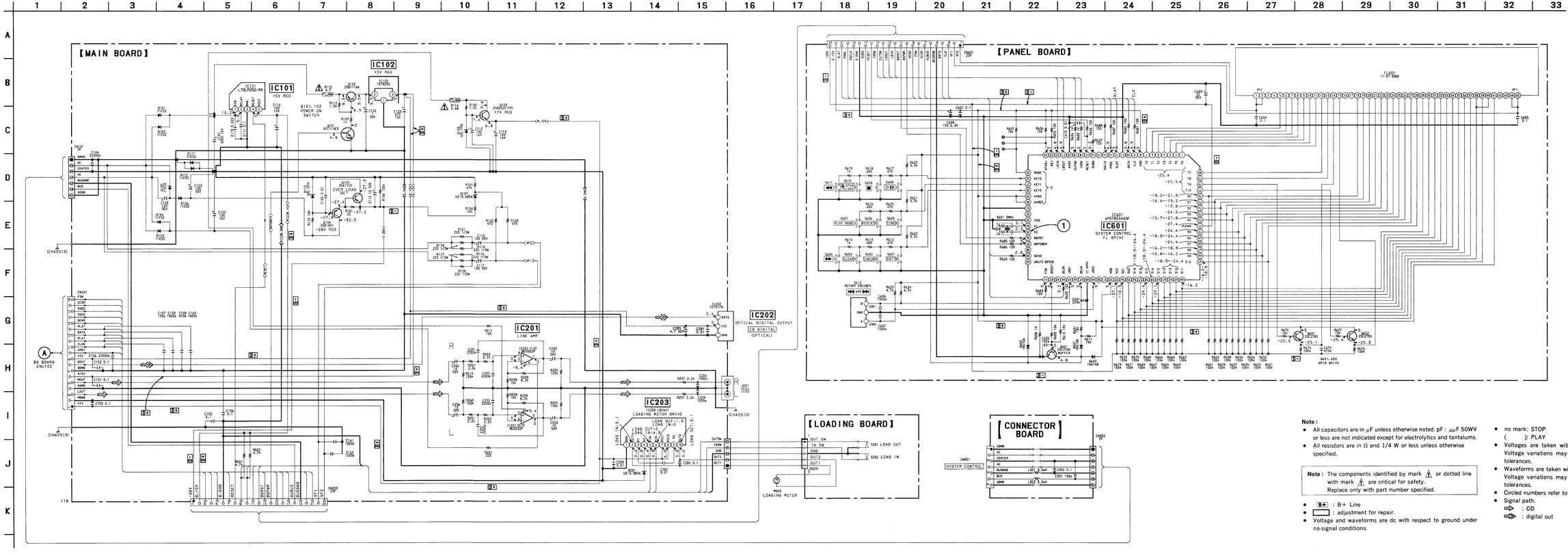
Ref. No.	Location
D101	B-3
D102	B-3
D103	B-3
D104	B-3
D105	B-3
D106	B-3
D107	D-7
D109	D-4
D110	D-5
D111	C-3
D112	C-3
D281	D-9
D601	I-3
D602	I-2
D603	I-3
IC101	E-4
IC102	E-4
IC201	E-9
IC202	B-2
IC203	D-9
IC601	I-5
Q101	E-3
Q102	E-3
Q103	D-4
Q104	D-5
Q105	D-5
Q601	I-2
Q651	I-10
Q652	I-10

Note :

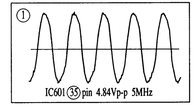
- ● : Through hole.
- ▒ : Pattern on the side which is seen.
  (The other layer's patterns are not indicated.)



5-6. SCHEMATIC DIAGRAM — MAIN SECTION — • Refer to page 23 for IC Block Diagrams.



• Waveform



Note :

- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.

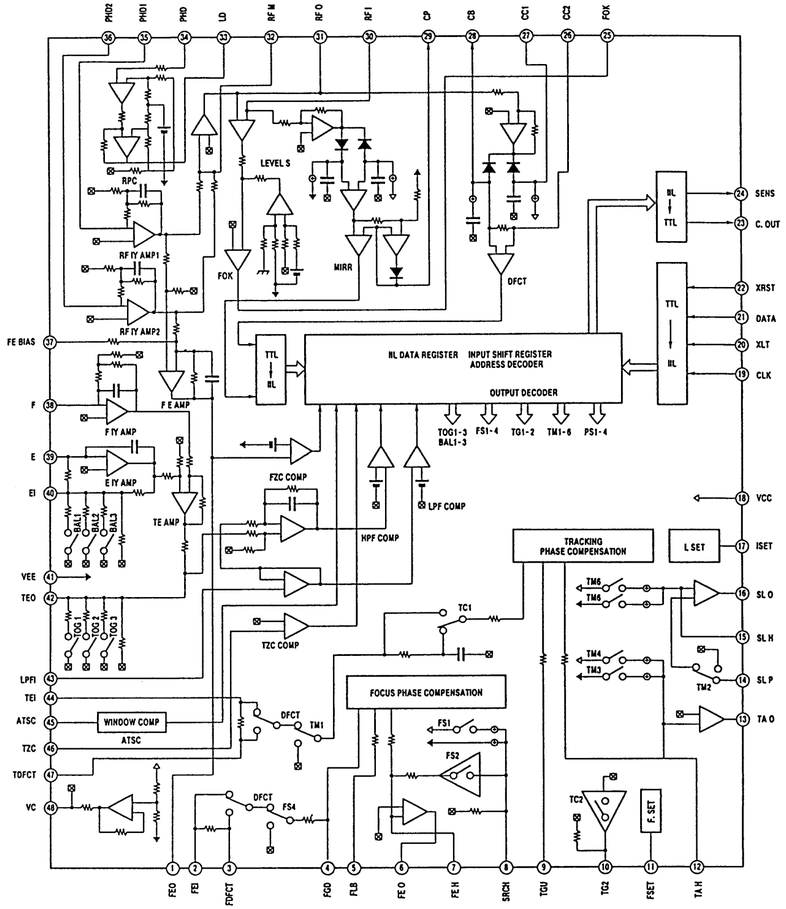
Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

- B+ : B+ Line
- ▭ : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.

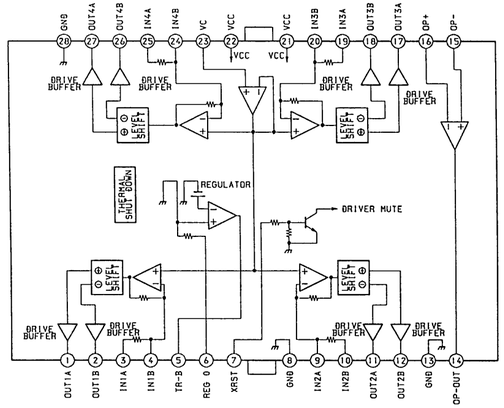
- no mark: STOP
  ( ): PLAY
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD
  ⇨ : digital out

• **IC Block Diagrams**

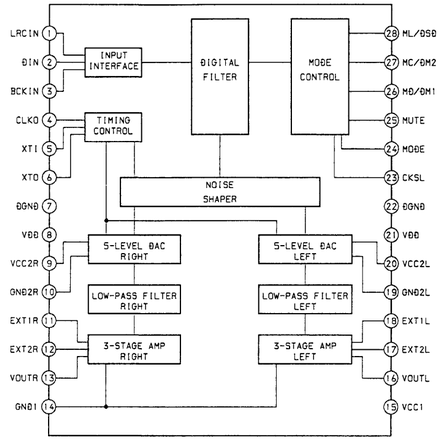
IC101 CXA1782BQ (BD Board)



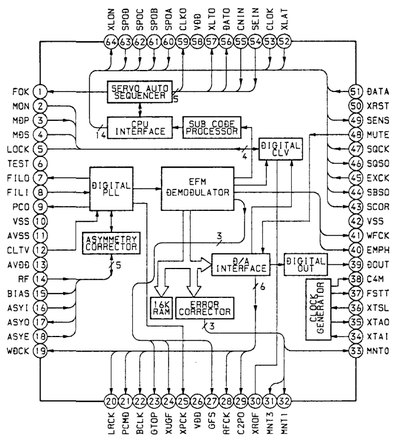
IC102 BA6397FP



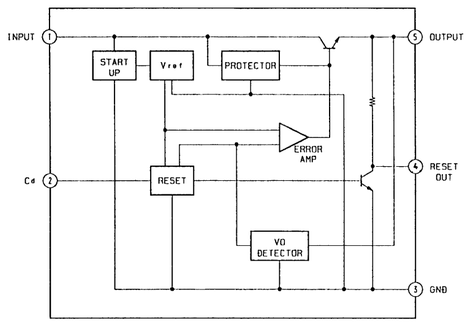
IC104 PCM1710U



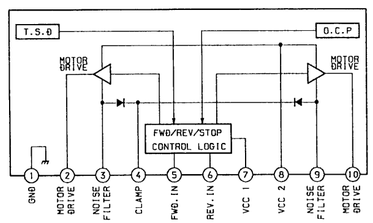
IC103 CXD2507AR



IC101 L78LR05D (Main Board)



IC203 LB1641



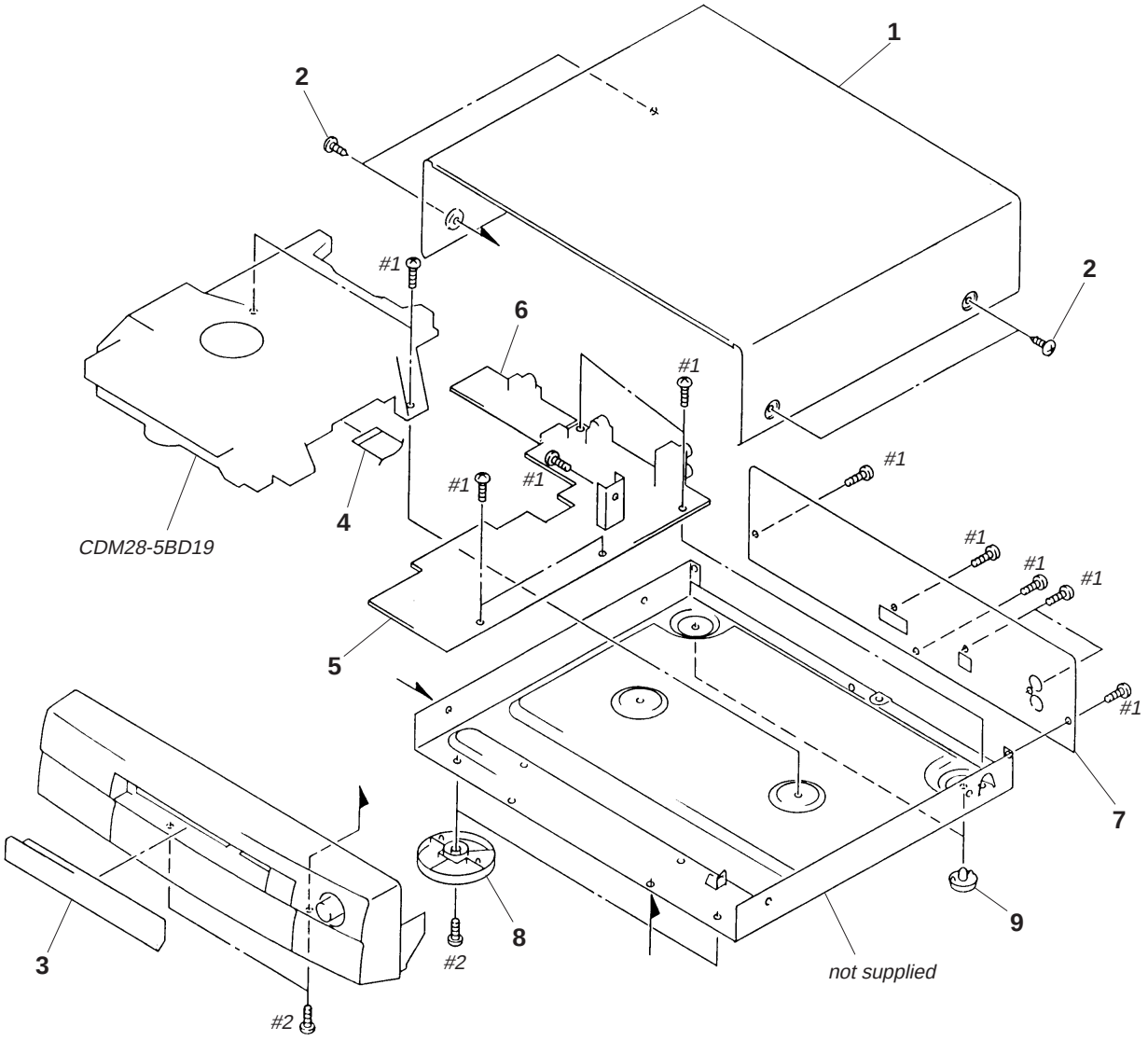
SECTION 6
EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Abbreviation
  EA : Saudi Arabia model
  TH : Thai model
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE) ... (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.

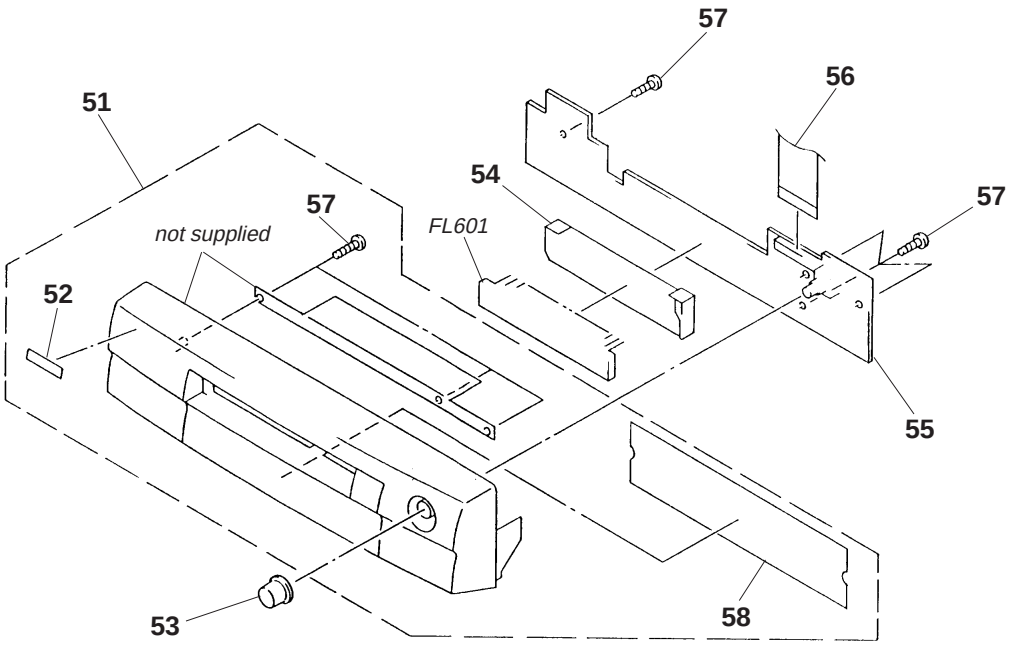
6-1. CHASSIS SECTION



Ref. No.	Part No.	Description	Remark
* 1	4-970-927-21	CASE (BLACK)	
* 1	4-970-927-41	CASE (SILVER)	
2	3-363-099-01	SCREW (CASE 3 TP2)	
3	4-977-986-01	PANEL, LOADING (E,EA,TH,AEP:SILVER)	
3	4-977-986-21	PANEL, LOADING (AEP,UK:BLACK)	
4	1-769-621-11	WIRE (FLAT TYPE) (19 CORE)	
* 5	A-4673-912-A	MAIN BOARD, COMPLETE (TH)	
* 5	A-4673-915-A	MAIN BOARD, COMPLETE (E,EA)	
* 5	A-4673-918-A	MAIN BOARD, COMPLETE (AEP,UK)	

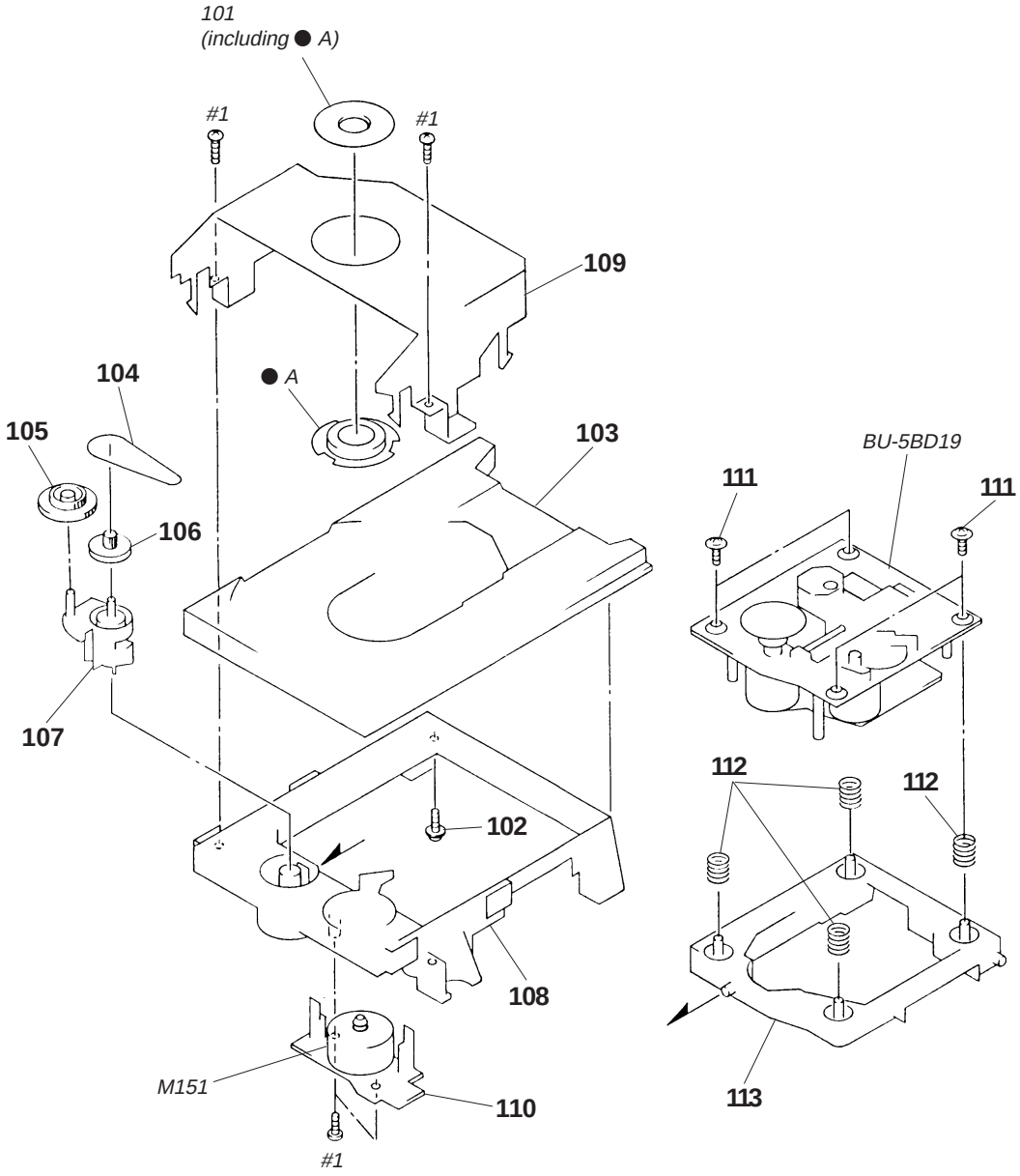
Ref. No.	Part No.	Description	Remark
* 6	1-659-178-11	CONNECTOR BOARD	
* 7	4-977-983-01	PANEL, BACK (E)	
* 7	4-977-983-11	PANEL, BACK (AEP,UK:BLACK,AEP:SILVER) (Made in France)	
* 7	4-977-983-21	PANEL, BACK (EA)	
* 7	4-977-983-31	PANEL, BACK (TH)	
* 7	4-977-983-41	PANEL, BACK (AEP:SILVER) (Made in Malaysia)	
8	4-977-699-11	LEG (F)	
9	4-965-822-01	FOOT	

6-2. FRONT PANEL SECTION



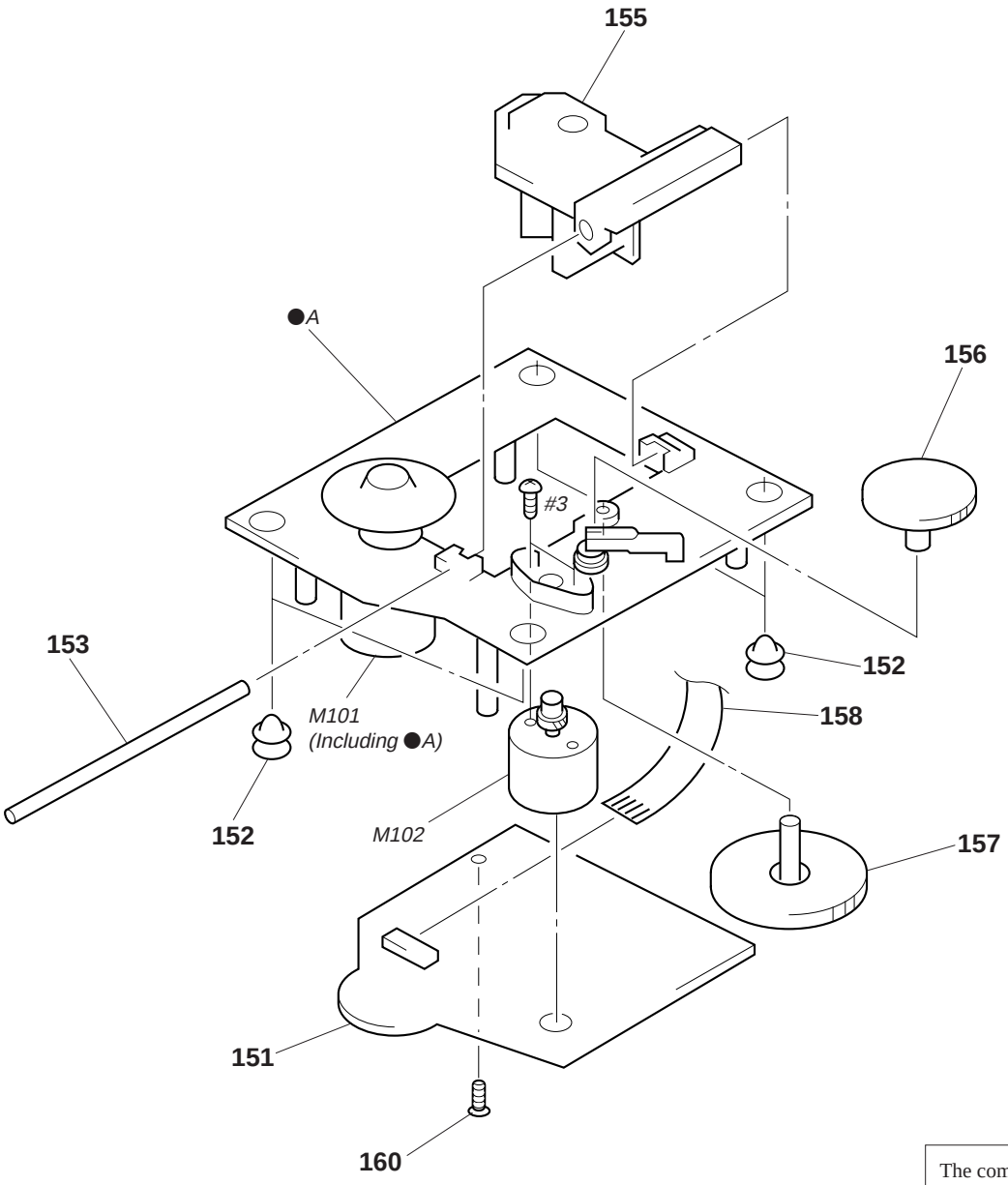
Ref. No.	Part No.	Description	Remark
51	X-4946-590-1	PANEL ASSY, FRONT (E,EA,AEP:SILVER) (Made in Malaysia)	
51	X-4946-832-1	PANEL ASSY (B), FRONT (AEP,UK:BLACK)	
51	X-4946-852-1	PANEL ASSY (S), FRONT (TH,AEP:SILVER) (Made in France)	
52	4-962-708-11	EMBLEM (4-A), SONY	
53	4-977-987-01	KNOB (JOG) (SILVER)	
53	4-977-987-11	KNOB (JOG) (BLACK)	
54	4-979-797-01	HOLDER (FL)	
* 55	A-4673-913-A	PANEL BOARD, COMPLETE (TH)	
* 55	A-4673-916-A	PANEL BOARD, COMPLETE (E,EA)	
* 55	A-4673-919-A	PANEL BOARD, COMPLETE (AEP,UK)	
56	1-776-237-11	WIRE (FLAT TYPE) (23 CORE)	
57	4-951-620-01	SCREW (2.6X8), +BVTP	
* 58	4-977-985-01	SHEET (FL)	
FL601	1-517-369-11	INDICATOR TUBE, FLUORESCENT	

6-3. CD MECHANISM SECTION (CDM28-5BD19)



Ref. No.	Part No.	Description	Remark
101	1-452-719-11	MAGNET ASSY	
102	4-917-583-21	BRACKET, YOKE	
103	4-960-836-01	TABLE, DISC	
104	4-927-649-01	BELT	
105	4-960-842-01	GEAR (P)	
106	4-960-841-01	PULLEY (S)	
* 107	4-960-839-01	CAM	
108	4-960-838-03	BASE (MD)	
109	4-960-835-01	HOLDER (M)	
* 110	1-650-836-11	LOADING BOARD	
111	4-933-134-01	SCREW (+PTPWH M2.6X6)	
112	4-959-996-01	SPRING (932), COMPRESSION	
113	4-960-834-01	HOLDER (BU)	
M151	A-4604-363-A	MOTOR (L) ASSY (LOADING)	

6-4. BASE UNIT SECTION (BU-5BD19)



The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
* 151	A-4673-402-A	BD BOARD, COMPLETE	
152	4-951-940-01	INSULATOR (BU)	
153	4-917-565-01	SHAFT, SLED	
⚠ 155	8-848-367-11	PICK-UP, OPTICAL KSS-213B/K-RP	
156	4-917-567-01	GEAR (M)	
157	4-917-564-01	GEAR (P), FLATNESS	
158	1-769-069-11	WIRE (FLAT TYPE) (16 CORE)	
160	4-951-620-01	SCREW (2.6X8), +BVTP	
M101	X-4917-523-3	BASE (OUTSERT) ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	

BD

SECTION 7
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : µ, for example:
  uA.. : µA.. uPA.. : µPA..
  uPB.. : µPB.. uPC.. : µPC.. uPD.. : µPD..
- CAPACITORS
  uF : µF
- COILS
  uH : µH

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board.

- Abbreviation
  EA : Saudi Arabia model
  TH : Thai model

Ref. No.	Part No.	Description			Remark
*	A-4673-402-A	BD BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C101	1-126-607-11	ELECT CHIP	47uF	20%	4V
C102	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C103	1-164-346-11	CERAMIC CHIP	1uF		16V
C105	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C106	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
C107	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
C108	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C109	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C110	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C111	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C112	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C113	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
C114	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C115	1-126-607-11	ELECT CHIP	47uF	20%	4V
C116	1-163-016-00	CERAMIC CHIP	0.0039uF	10%	50V
C117	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C118	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C119	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C120	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C121	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C122	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C123	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C124	1-126-607-11	ELECT CHIP	47uF	20%	4V
C125	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C126	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C127	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
C128	1-163-135-00	CERAMIC CHIP	560PF	5%	50V
C129	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C130	1-164-336-11	CERAMIC CHIP	0.33uF		25V
C131	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C132	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C133	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V
C134	1-164-346-11	CERAMIC CHIP	1uF		16V
C135	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C136	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C137	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C139	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C140	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C141	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C142	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C145	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C146	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C147	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C148	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C149	1-164-346-11	CERAMIC CHIP	1uF		16V
C153	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C154	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
		< CONNECTOR >			
CNU101	1-770-014-11	CONNECTOR, FFC/FPC 16P			
CNU102	1-770-013-11	CONNECTOR, FFC/FPC 19P			
		< IC >			
IC101	8-752-069-56	IC CXA1782BQ			
IC102	8-759-291-06	IC BA6397FP			
IC103	8-752-372-94	IC CXD2507AQ			
IC104	8-759-185-29	IC PCM1710U-B			
		< TRANSISTOR >			
Q101	8-729-010-08	TRANSISTOR MSB710-R			
Q102	8-729-424-08	TRANSISTOR UN2111			
Q103	8-729-421-22	TRANSISTOR UN2211			
		< RESISTOR >			
R102	1-216-001-00	METAL CHIP	10	5%	1/10W
R103	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R104	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R105-108					
	1-216-093-00	METAL CHIP	68K	5%	1/10W
R109	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R112	1-216-083-00	METAL CHIP	27K	5%	1/10W
R113	1-216-083-00	METAL CHIP	27K	5%	1/10W
R114	1-216-101-00	METAL CHIP	150K	5%	1/10W
R115	1-216-101-00	METAL CHIP	150K	5%	1/10W
R116	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R117	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R118	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R119	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R120	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R121	1-216-114-00	METAL GLAZE	510K	5%	1/10W
R122	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R123	1-216-099-00	METAL CHIP	120K	5%	1/10W
R124	1-216-091-00	METAL CHIP	56K	5%	1/10W
R125	1-216-069-00	METAL CHIP	6.8K	5%	1/10W

Ref. No.	Part No.	Description				Remark
R126	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R127	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R128	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R129	1-216-049-11	METAL GLAZE	1K	5%	1/10W	
R130	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R131	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R132	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R133	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R134	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R135	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R136	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R137	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R138	1-216-049-11	METAL GLAZE	1K	5%	1/10W	
R139	1-216-033-00	METAL CHIP	220	5%	1/10W	
R140	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R141	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R142	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R143	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R144	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R145	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R146	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R147-149						
	1-216-049-11	METAL GLAZE	1K	5%	1/10W	
R150-152						
	1-216-037-00	METAL CHIP	330	5%	1/10W	
R153	1-216-082-00	METAL GLAZE	24K	5%	1/10W	
R154	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R156	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R157	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R158	1-216-001-00	METAL CHIP	10	5%	1/10W	
		< VARIABLE RESISTOR >				
RV101	1-241-396-11	RES, ADJ, METAL GLAZE 22K				
RV102	1-241-396-11	RES, ADJ, METAL GLAZE 22K				
RV103	1-241-396-11	RES, ADJ, METAL GLAZE 22K				
		< SWITCH >				
S101	1-572-085-11	SWITCH, LEAF (LIMIT SW)				
		< VIBRATOR >				
X101	1-579-280-11	VIBRATOR, CRYSTAL (16.9344MHz)				
**********						
*	1-659-178-11	CONNECTOR BOARD				
		**********				
		< CAPACITOR >				
C301	1-162-282-31	CERAMIC	100PF	10%	50V	
C302	1-164-159-21	CERAMIC	0.1uF		50V	
		< CONNECTOR >				
CN301	1-770-158-21	HOUSING, CONNECTOR 7P (SYSTEM CONTROL)				
CN302	1-770-031-11	CONNECTOR, BOARD TO BOARD 7P				
		< COIL >				
L301	1-410-464-11	INDUCTOR 3.3uH				
L302	1-410-464-11	INDUCTOR 3.3uH				
**********						
*	1-650-836-11	LOADING BOARD				
		**********				
		< CONNECTOR >				
* CN291	1-568-943-11	PIN, CONNECTOR 5P				
		< SWITCH >				
S291	1-572-086-11	SWITCH, LEAF (LOAD OUT)				
S292	1-572-086-11	SWITCH, LEAF (LOAD IN)				
**********						
*	A-4673-912-A	MAIN BOARD, COMPLETE (TH)				
*	A-4673-915-A	MAIN BOARD, COMPLETE (E,EA)				
*	A-4673-918-A	MAIN BOARD, COMPLETE (AEP,UK)				
		**********				
	1-537-770-21	TERMINAL BOARD, GROUND				
	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S				
		< CAPACITOR >				
C101	1-126-936-11	ELECT	3300uF	20%	16V	
C102	1-126-968-11	ELECT	100uF	20%	50V	
C103	1-126-968-11	ELECT	100uF	20%	50V	
C104	1-161-494-00	CERAMIC	0.022uF		25V	
C105	1-126-933-11	ELECT	100uF	20%	16V	
C110	1-161-494-00	CERAMIC	0.022uF		25V	
C111	1-164-159-21	CERAMIC	0.1uF		50V	
C112	1-126-933-11	ELECT	100uF	20%	16V	
C113	1-126-933-11	ELECT	100uF	20%	16V	
C115	1-126-964-11	ELECT	10uF	20%	50V	
C116	1-126-933-11	ELECT	100uF	20%	10V	
C117	1-126-968-11	ELECT	100uF	20%	50V	
C118	1-126-968-11	ELECT	100uF	20%	50V	
C122	1-124-903-11	ELECT	1uF	20%	50V	
C123	1-126-925-11	ELECT	470uF	20%	10V	
C124	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C151-155						
	1-164-159-21	CERAMIC	0.1uF		50V	
C156	1-161-494-00	CERAMIC	0.022uF		25V	
C157	1-162-282-31	CERAMIC	100PF	10%	50V	
C158	1-162-290-31	CERAMIC	470PF	10%	50V	
C159-162						
	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C201	1-130-475-00	MYLAR	0.0022uF	5%	50V	
C202	1-130-475-00	MYLAR	0.0022uF	5%	50V	
C203	1-126-964-11	ELECT	10uF	20%	50V	
C204	1-162-294-31	CERAMIC	0.001uF	10%	50V	

MAIN PANEL

Ref. No.	Part No.	Description				Remark
C206	1-126-964-11	ELECT	10uF	20%	50V	
C251	1-130-475-00	MYLAR	0.0022uF	5%	50V	
C252	1-130-475-00	MYLAR	0.0022uF	5%	50V	
C253	1-126-964-11	ELECT	10uF	20%	50V	
C254	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C256	1-126-964-11	ELECT	10uF	20%	50V	
C281-283						
	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C284	1-164-159-21	CERAMIC	0.1uF		50V	
C285	1-126-963-11	ELECT	4.7uF	20%	50V	
		< CONNECTOR >				
* CN101	1-691-406-11	CONNECTOR, BOARD TO BOARD 7P				
CN201	1-770-167-11	CONNECTOR, FFC/FPC 19P				
* CN203	1-568-839-11	SOCKET, CONNECTOR 23P				
		< DIODE >				
D101	8-719-200-82	DIODE	11ES2			
D102	8-719-200-82	DIODE	11ES2			
D103	8-719-200-82	DIODE	11ES2			
D104	8-719-200-82	DIODE	11ES2			
D105	8-719-200-82	DIODE	11ES2			
D106	8-719-200-82	DIODE	11ES2			
D107	8-719-982-03	DIODE	MTZJ-3.6A			
D109	8-719-933-50	DIODE	HZS7C2L			
D110	8-719-982-19	DIODE	MTZJ-30A			
D111	8-719-200-82	DIODE	11ES2			
D112	8-719-200-82	DIODE	11ES2			
D281	8-719-109-71	DIODE	RD3.9ES-B1			
		< IC >				
IC101	8-759-805-37	IC	L78LR05D			
IC102	8-759-231-53	IC	TA7805S			
IC201	8-759-900-72	IC	NE5532P			
IC202	8-749-923-04	IC	TOTX178 (CD DIGITAL,OPTICAL)			
IC203	8-759-822-09	IC	LB1641			
		< JACK >				
J201	1-770-272-11	JACK, PIN 2P (CD)				
		< TRANSISTOR >				
Q101	8-729-900-80	TRANSISTOR	DTC114ES			
Q102	8-729-118-00	TRANSISTOR	2SB1116-L			
Q103	8-729-030-18	TRANSISTOR	2SD2525			
Q104	8-729-019-64	TRANSISTOR	2SB1041			
Q105	8-729-119-76	TRANSISTOR	2SA1175-HFE			
		< RESISTOR >				
R101	1-249-437-11	CARBON	47K	5%	1/4W	
R102	1-249-413-11	CARBON	470	5%	1/4W	
R103	1-249-413-11	CARBON	470	5%	1/4W	
R104	1-247-807-11	CARBON	100	5%	1/4W	
R107	1-249-417-11	CARBON	1K	5%	1/4W	

Ref. No.	Part No.	Description				Remark
R108	1-249-441-11	CARBON	100K	5%	1/4W	
R110	1-249-429-11	CARBON	10K	5%	1/4W	
R112	1-249-419-11	CARBON	1.5K	5%	1/4W	
⚠ R114	1-219-139-11	FUSIBLE	0.68	10%	1/4W	F
⚠ R115	1-217-641-00	FUSIBLE	4.7	5%	1/4W	F
R116-121						
	1-260-091-11	CARBON	220	5%	1/2W	
R130	1-249-417-11	CARBON	1K	5%	1/4W	
R131	1-247-791-00	CARBON	22	5%	1/4W	
R201	1-249-421-11	CARBON	2.2K	5%	1/4W	
R202	1-249-421-11	CARBON	2.2K	5%	1/4W	
R205	1-249-441-11	CARBON	100K	5%	1/4W	
R207	1-249-421-11	CARBON	2.2K	5%	1/4W	
R208	1-249-429-11	CARBON	10K	5%	1/4W	
R209	1-249-428-11	CARBON	8.2K	5%	1/4W	
R210	1-249-441-11	CARBON	100K	5%	1/4W	
R211	1-247-807-11	CARBON	100	5%	1/4W	
R251	1-249-421-11	CARBON	2.2K	5%	1/4W	
R252	1-249-421-11	CARBON	2.2K	5%	1/4W	
R255	1-249-441-11	CARBON	100K	5%	1/4W	
R257	1-249-421-11	CARBON	2.2K	5%	1/4W	
R258	1-249-429-11	CARBON	10K	5%	1/4W	
R259	1-249-428-11	CARBON	8.2K	5%	1/4W	
R260	1-249-441-11	CARBON	100K	5%	1/4W	
R261	1-247-815-00	CARBON	220	5%	1/4W	
R601	1-249-425-11	CARBON	4.7K	5%	1/4W	
R602	1-249-425-11	CARBON	4.7K	5%	1/4W	
**********						
*	A-4673-913-A	PANEL BOARD, COMPLETE (TH)				
*	A-4673-916-A	PANEL BOARD, COMPLETE (E,EA)				
*	A-4673-919-A	PANEL BOARD, COMPLETE (AEP,UK)				
		**********				
*	4-979-797-01	HOLDER (FL)				
		< CAPACITOR >				
C602	1-164-159-21	CERAMIC	0.1uF		50V	
C604	1-164-159-21	CERAMIC	0.1uF		50V	
C605	1-164-159-21	CERAMIC	0.1uF		50V	
C606	1-162-301-11	CERAMIC	0.0015uF	30%	16V	
C607	1-162-301-11	CERAMIC	0.0015uF	30%	16V	
C608	1-126-177-11	ELECT	100uF	20%	10V	
C609	1-124-916-11	ELECT	22uF	20%	63V	
C610	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C631	1-162-286-21	CERAMIC	220PF	10%	50V	
C632	1-162-282-31	CERAMIC	100PF	10%	50V	
C674	1-162-290-31	CERAMIC	470PF	10%	50V	
		< CONNECTOR >				
* CN601	1-568-865-11	SOCKET, CONNECTOR 23P				

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
		< DIODE >	
D601	8-719-815-85	DIODE 1S1585	
D602	8-719-815-85	DIODE 1S1585	
D603	8-719-815-85	DIODE 1S1585	
		< FLUORESCENT INDICATOR TUBE >	
FL601	1-517-369-11	INDICATOR TUBE, FLUORESCENT	
		< IC >	
IC601	8-759-340-60	IC uPD78044AGF-091-3B9	
		< TRANSISTOR >	
Q601	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q651	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q652	8-729-119-78	TRANSISTOR 2SC2785-HFE	
		< RESISTOR >	
R603	1-249-417-11	CARBON 1K 5% 1/4W	
R604	1-249-417-11	CARBON 1K 5% 1/4W	
R605-607			
	1-249-429-11	CARBON 10K 5% 1/4W	
R608	1-249-393-11	CARBON 10 5% 1/4W	
R609-611			
	1-249-429-11	CARBON 10K 5% 1/4W	
R612	1-249-413-11	CARBON 470 5% 1/4W	
R613	1-249-415-11	CARBON 680 5% 1/4W	
R614	1-249-417-11	CARBON 1K 5% 1/4W	
R615	1-249-413-11	CARBON 470 5% 1/4W	
R616	1-249-415-11	CARBON 680 5% 1/4W	
R617	1-249-413-11	CARBON 470 5% 1/4W	
R618	1-249-415-11	CARBON 680 5% 1/4W	
R619	1-249-417-11	CARBON 1K 5% 1/4W	
R620-622			
	1-249-423-11	CARBON 3.3K 5% 1/4W	
R624	1-249-425-11	CARBON 4.7K 5% 1/4W	
R625	1-249-425-11	CARBON 4.7K 5% 1/4W	
R626-629			
	1-247-807-11	CARBON 100 5% 1/4W	
R631	1-249-429-11	CARBON 10K 5% 1/4W	
R651-674			
	1-249-441-11	CARBON 100K 5% 1/4W	
R675	1-249-429-11	CARBON 10K 5% 1/4W	
R676	1-249-441-11	CARBON 100K 5% 1/4W	
R677	1-249-429-11	CARBON 10K 5% 1/4W	
R681-683			
	1-247-807-11	CARBON 100 5% 1/4W	
R685-688			
	1-247-807-11	CARBON 100 5% 1/4W	

Ref. No.	Part No.	Description	Remark
		< SWITCH >	
S601	1-554-303-21	SWITCH, TACTILE (EDIT)	
S602	1-554-303-21	SWITCH, TACTILE (CHECK)	
S603	1-554-303-21	SWITCH, TACTILE (CLEAR)	
S604	1-554-303-21	SWITCH, TACTILE (▶▶)	
S605	1-554-303-21	SWITCH, TACTILE (TIME)	
S606	1-554-303-21	SWITCH, TACTILE (REPEAT)	
S607	1-554-303-21	SWITCH, TACTILE (PLAY MODE)	
S608	1-554-303-21	SWITCH, TACTILE (▷ ❚❚)	
S609	1-554-303-21	SWITCH, TACTILE (■)	
S610	1-554-303-21	SWITCH, TACTILE (⏏ OPEN/CLOSE)	
S611	1-554-303-21	SWITCH, TACTILE (◀◀)	
S612	1-467-938-11	ENCODER, ROTARY (I◀◀ AMS ▶▶I)	
		< VIBRATOR >	
X601	1-579-233-11	VIBRATOR, CERAMIC (5MHz)	
**********			
		MISCELLANEOUS	
		**********	
4	1-769-621-11	WIRE (FLAT TYPE) (19 CORE)	
56	1-776-237-11	WIRE (FLAT TYPE) (23 CORE)	
101	1-452-719-11	MAGNET ASSY	
⚠ 155	8-848-367-11	PICK-UP, OPTICAL KSS-213B/K-RP	
158	1-769-069-11	WIRE (FLAT TYPE) (16 CORE)	
M101	X-4917-523-3	BASE (OUTSERT) ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	
M151	A-4604-363-A	MOTOR (L) ASSY (LOADING)	
**********			
		**********	
		HARDWARE LIST	
		**********	
#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#2	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#3	7-621-255-15	SCREW +P 2X3	

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

Sony Corporation
Consumer A&V Products Company
Home A&V Products Div.

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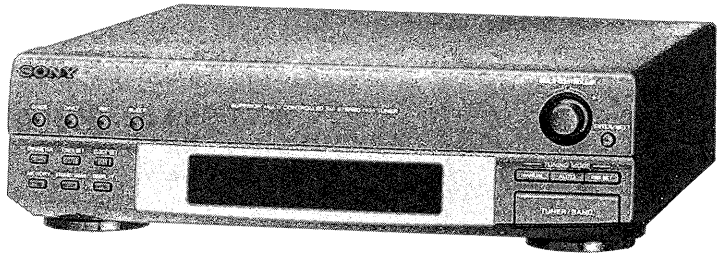
Quality Engineering Dept.

ST-EX100

SERVICE MANUAL

AEP Model
UK Model
E Model



This set is the tuner section in MHC-EX50/EX70AV/EX90/EX100AV.

Photo : E mode (SILVER)

SPECIFICATIONS

FM stereo, FM/AM superheterodyne tuner

FM tuner section

Tuning range 87.5 – 108.0 MHz (50 kHz step)
Aerial FM lead aerial
Aerial terminals 75 ohm unbalanced
Intermediate frequency 10.7 MHz

AM tuner section

Tuning range
Italian model:
AM: 522 – 1,611 kHz (with the interval set at 9 kHz)
German model:
AM: 531 – 1,602 kHz (with the interval set at 9 kHz)
E, Saudi Arabia, Thailand models:
AM: 531 – 1,602 kHz (with the interval set at 9 kHz)
530 – 1,710 kHz (with the interval set at 10 kHz)
Other models:
MW: 531 – 1,602 kHz (with the interval set at 9 kHz)
LW: 153 – 279 kHz (with the interval set at 3 kHz)
Aerial AM loop aerial, External aerial terminals
Intermediate frequency 450 kHz

Dimensions
Approx. 280 x 82.5 x 285 mm (11 1/8 x 3 1/4 x 11 1/4 in) (w/h/d) incl. projecting parts and controls
Mass Approx. 1.5 kg (3 lb 4 oz)

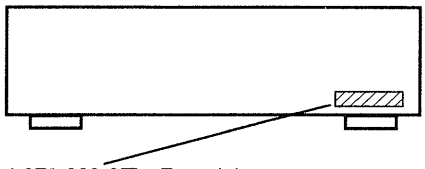
使用時は添付資料も参照のこと
Refer to the accitional documents.

FM STEREO/FM-AM TIMER TUNER

SONY®

MODEL IDENTIFICATION

— Back Panel —



4-978-999-0□...E model
4-978-999-1□...AEP, UK, German, Italian, CIS model (Made in France)
4-978-999-2□...AEP, UK model (Made in Malaysia)
4-978-999-3□...Saudi Arabia model
4-978-999-4□...Thailand model

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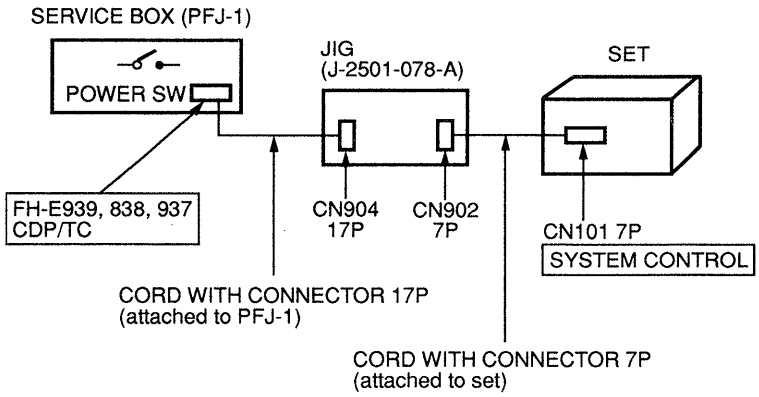
SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1
SERVICING NOTE

How to operate with a single unit.

Normally, this set is not operated with its own.
The exclusive jig (J-2501-078-A) and service box (PFJ-1) are necessary to operate the set with a single unit.
Turn the power set of the service box ON. Then press the ENTER/NEXT button and SLEEP button at the same time to turn the power on.



- **KEY/FL tube/LED check mode.**

To enter KEY/FL/LED check mode, press the ENTER/NEXT and REC buttons at the same time.
Under mode, every time when press any key or turn MULTI CONTROLLER knob, change to next situation.

① All LED indicators light on
② All FL tube indicators light on
③ A part of FL tube light on mode 1. (Indicated ST-SEG)
④ A part of FL tube light on mode 2. (Indicated RDS-SEG)
⑤ KEY check mode

Note :

1) All LED light on mode is keeped, when buttons which is pressed to enter all LED light on mode, release same time.
   When release them separate timing, it is moved to next All LED light on mode.

2) After all LED light on mode, light on point remove one by one, when any button pressed or MULTI CONTROLLER knob turned.

3) Under KEY check mode, every time buttons pressed numerical value of "KEY" in FL tube increse.
   And that time, numerical value of "ECDR" increse when MULTI CONTROLLER button turn to + direction, and it decrese turn to – direction.

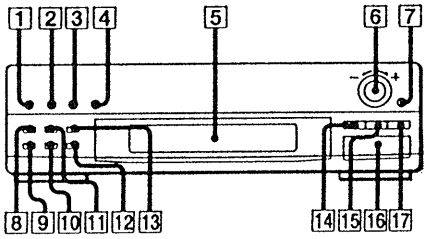
When you want to finish this mode, unplug the power of amplifire or turn off PFJ-1 of POWER switch.

SECTION 2
GENERAL

This section is extracted from instruction manual.

Index to Parts and Controls

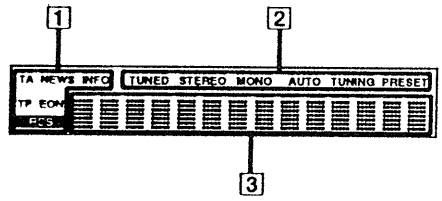
Front Panel



1 ONCE button* (25, 26)
2 DAILY button* (25, 26)
3 REC button* (26)
4 SLEEP button* (25)
5 Display window (6, 10, 25)
6 MULTI CONTROLLER* (6, 10, 11, 13, 26)
7 ENTER/NEXT button* (6, 11, 26)
8 CHARACTER button (11)
9 EON (Enhanced Other Networks) button (12) (AEP, UK, G, IT)
MEMORY button (E, EA, CIS,TH)
10 PTY (Programme Type) button (13) (AEP, G, IT, UK)
STEREO/MONO button (E, EA, CIS, TH)
11 TIMER SET button (25)
12 DISPLAY button (11, 12)
13 CLOCK SET button (6)
14 STEREO/MONO button (10)
MANUAL button (E, EA, CIS, TH)
15 TUNING MODE button (10) (AEP, UK, G, IT)
AUTO button (E, EA, CIS, TH)
16 TUNER/BAND button (10, 18, 30)
17 MEMORY button (11) (AEP, UK, G, IT)
PRESET button (E, EA, CIS, TH)

• Abbreviation
G : German model.
IT : Italian model.
EA : Saudi Arabia model.
TH : Thailand model

Display Window

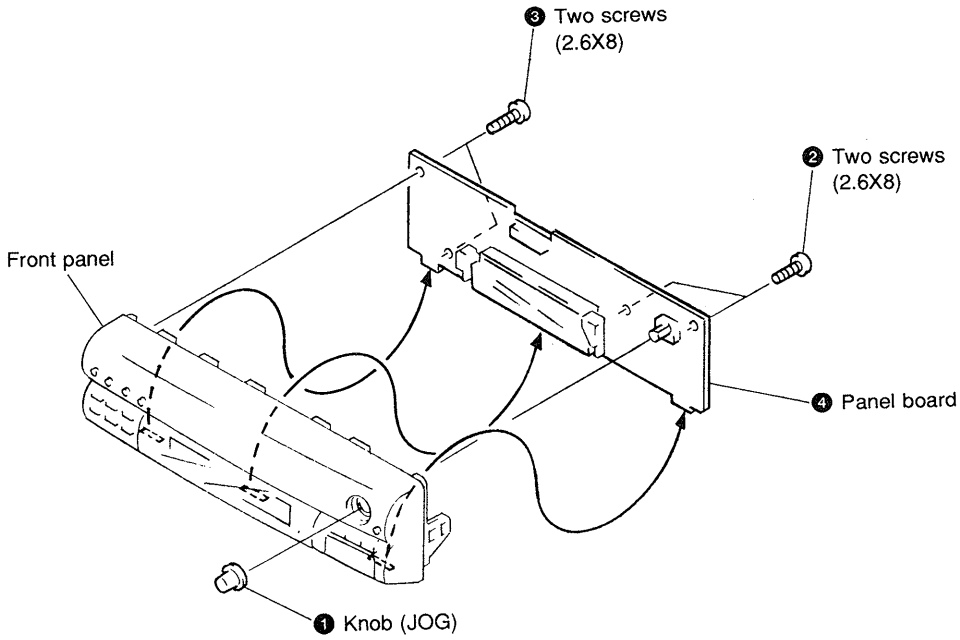


1 RDS service indications (12) (AEP, UK, G, IT)
2 Tuner indication (10)
3 Frequency/station name/time/timer indication (6, 10, 11, 25)

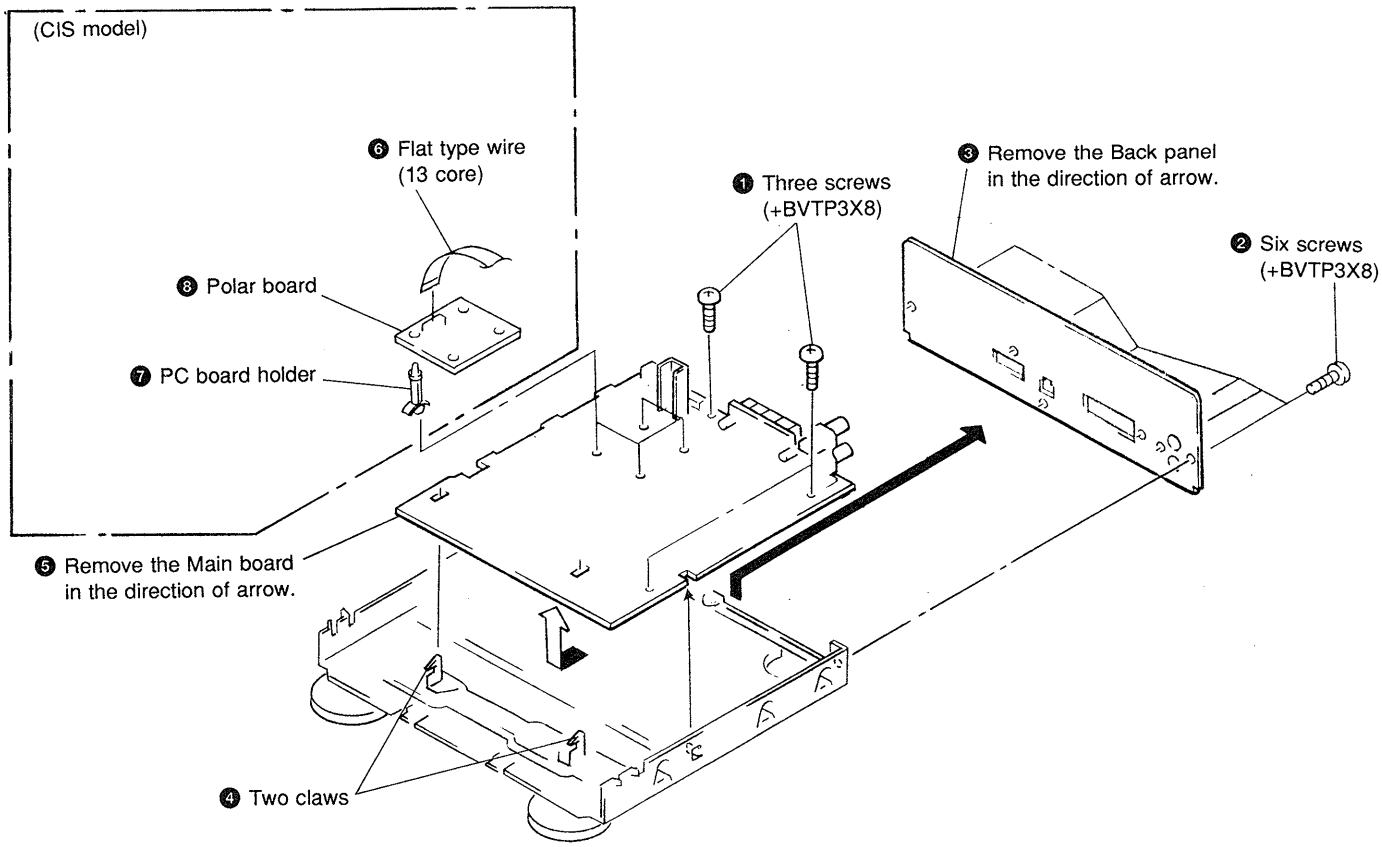
SECTION 3
DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

3-1. PANEL BOARD



3-2. BACK PANEL, MAIN BOARD AND POLAR BOARD



SECTION 4
ELECTRICAL ADJUSTMENTS

Precautions in Repairing

If the front unit fails, it is difficult to repair the inner circuits, so replace the entire front end unit.

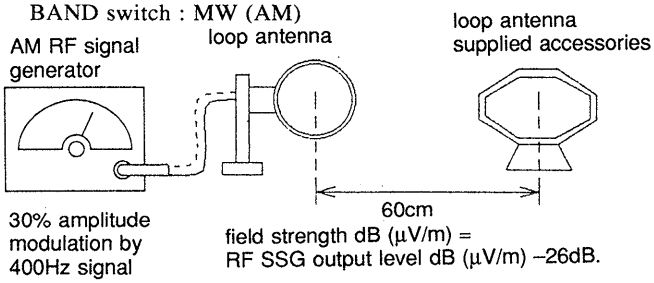
The FM TUNED level must be adjusted after the AM TUNED level adjustment has completed.

AM SECTION

AM Tuning Level Adjustment

Setting :

BAND switch : MW (AM)



30% amplitude modulation by 400Hz signal

field strength dB (μV/m) = RF SSG output level dB (μV/m) –26dB.

Carrier frequency : 999kHz (at 9k step)
1,000kHz (at 10k step)

Output level : 25dBμ

Procedure :

1. Set loop antenna A so that the loop antenna B input level becomes 55dBμ/m.
2. Tune the set to 999kHz or 1,000 kHz.
3. Adjust RV1 so that the TUNED indicator goes on.

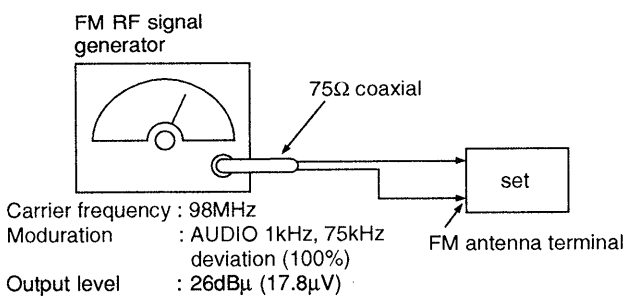
Adjustment Location : MAIN board. (See page 7)

FM SECTION

FM Tuning Level Adjustment

Setting :

BAND switch : FM



Carrier frequency : 98MHz
Moduration : AUDIO 1kHz, 75kHz deviation (100%)
Output level : 26dBμ (17.8μV)

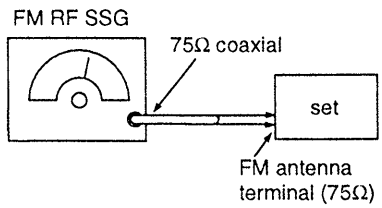
Procedure :

1. Tune the set to 98MHz.
2. Adjust RV2 so that the TUNED indicator goes on.

Adjustment Location : MAIN board. (See page 7)

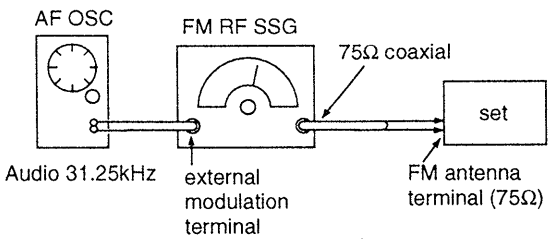
FM Polar Adjustment (CIS model only)

Connection 1 :



Carrier frequency : 69MHz
Output level : 1mV (60dBμ) (at 75Ω open)
Modulation : AUDIO 1kHz, 10kHz deviation

Connection 2 :



Carrier frequency : 69MHz
Output level : 1mV (60dBμ) (at 75Ω open)
Modulation : AUDIO 31.25kHz, 10kHz deviation (EXTERNAL MODULATION)

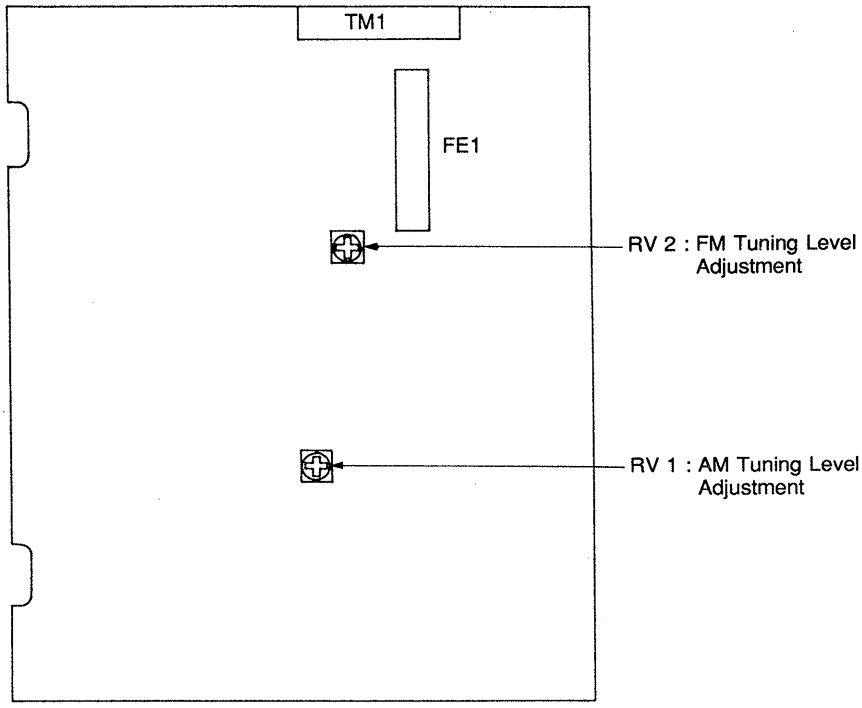
Procedure :

1. Set the modulation of FM RF SSG to AUDIO 1 kHz, 10 kHz deviation according to "Connection 1".
2. Tune the set to 69 MHz.
3. Adjust the RV1702 so that the reading of frequency counter connected to TP1702 becomes within 31.25 kHz ± 0.05 kHz. (VCO frequency adjustment)
4. Then record the reading of the level meter connected to TP1701.
5. Set the modulation of FM RF SSG to AUDIO 31.25 kHz, 10 kHz deviation according to "Connection 2".
6. Tune the set to 69 MHz.
7. Set the CT1701 to be mechanical center.
8. Adjust the L1701 so that the reading of the level meter connected to TP1701 becomes maximum.
   Then adjust the CT1701 so that the reading of the level meter connected to TP1701 becomes maximum. (SUB CARRIER PEAK Adjustment)
9. Adjust the RV1701 so that the level at the moment becomes 14 dB higher value than the level recorded in step 4. (SUB CARRIER LEVEL Adjustment)

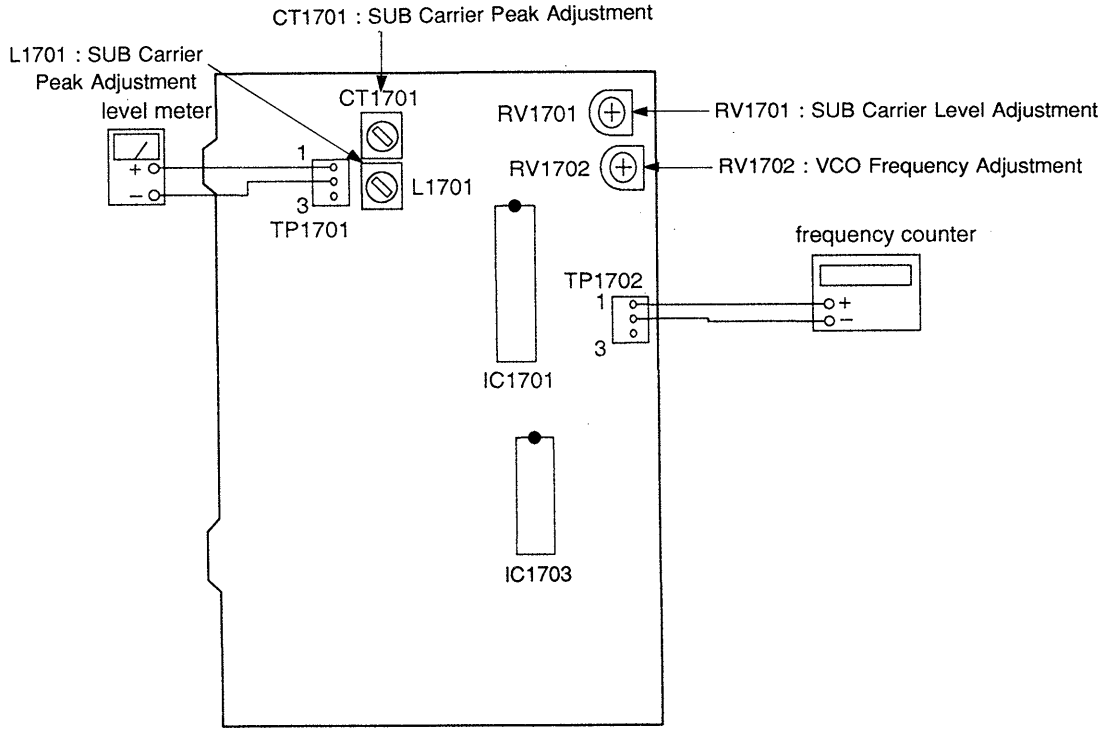
Adjustment Location : Polar board. (See page 7)

Adjustment Location

[MAIN BOARD] — Component side —



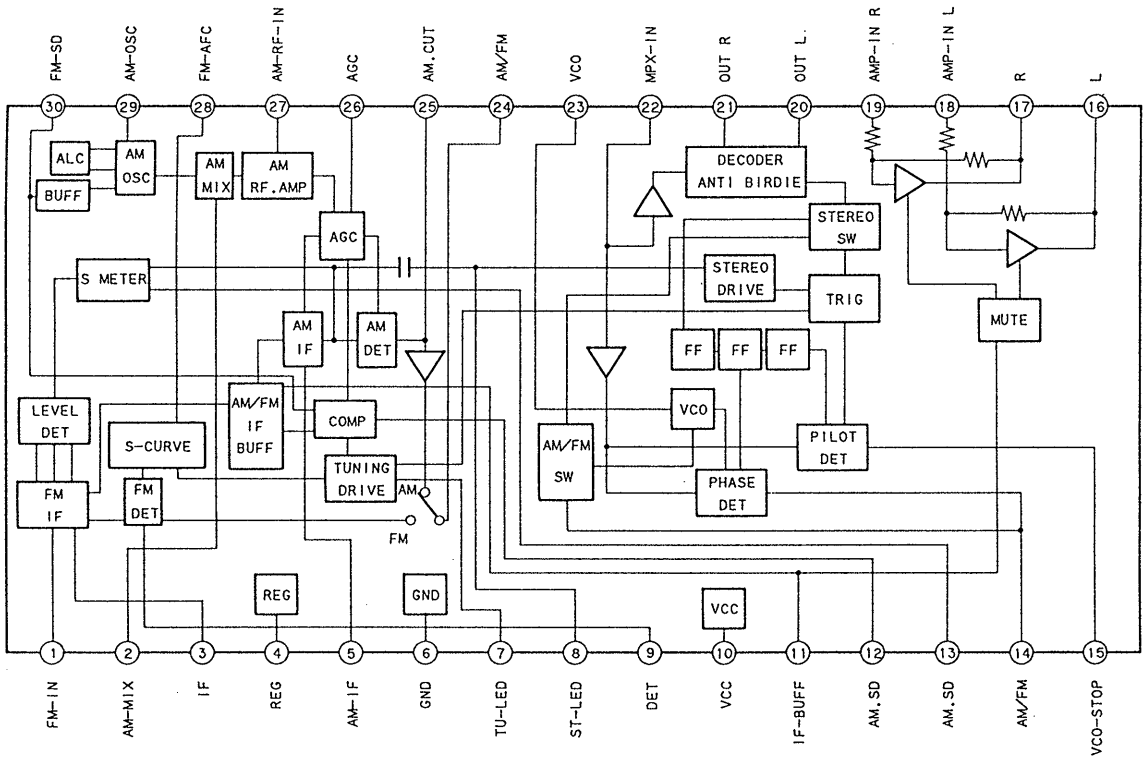
[POLAR BOARD] — Component side —



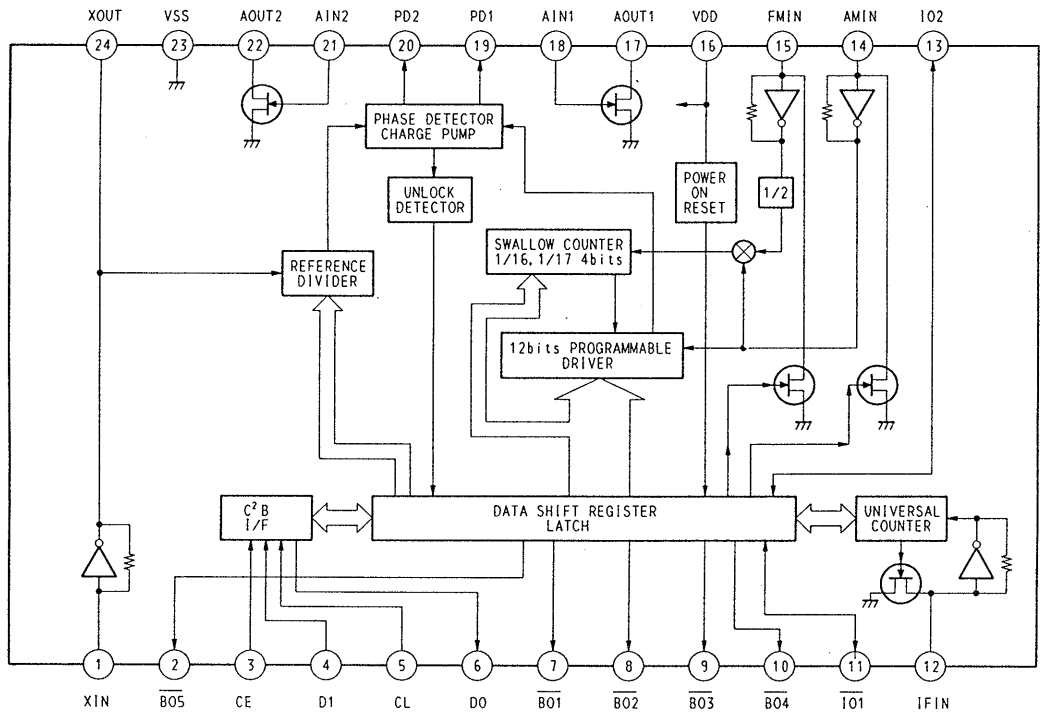
SECTION 5
DIAGRAMS

5-1. IC BLOCK DIAGRAMS

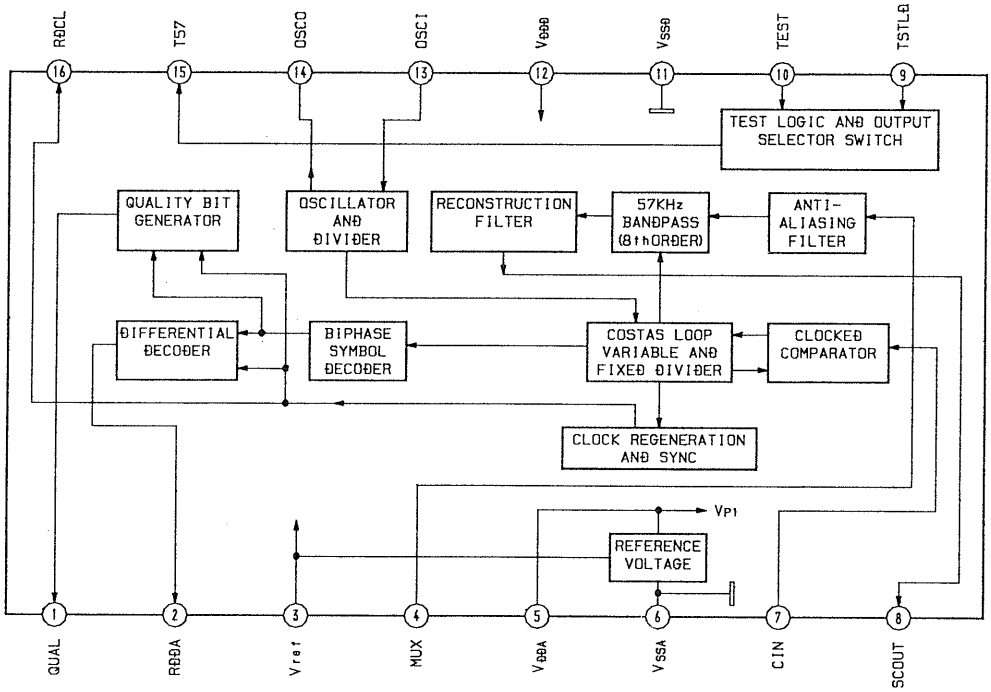
IC1 LA1835



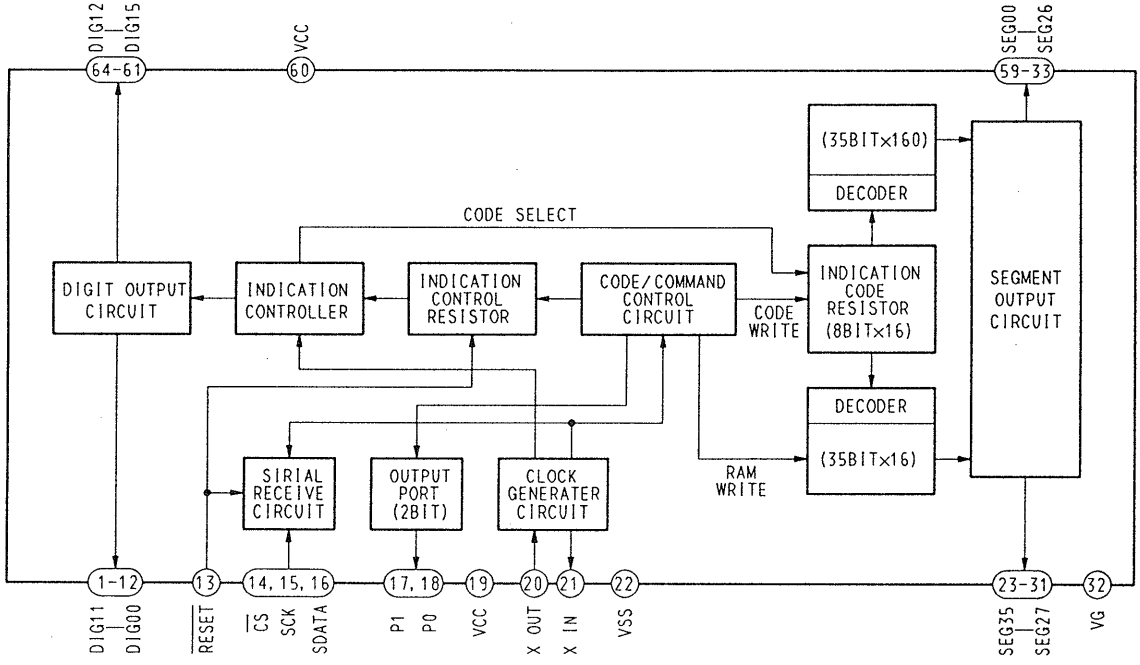
IC51 LC72130



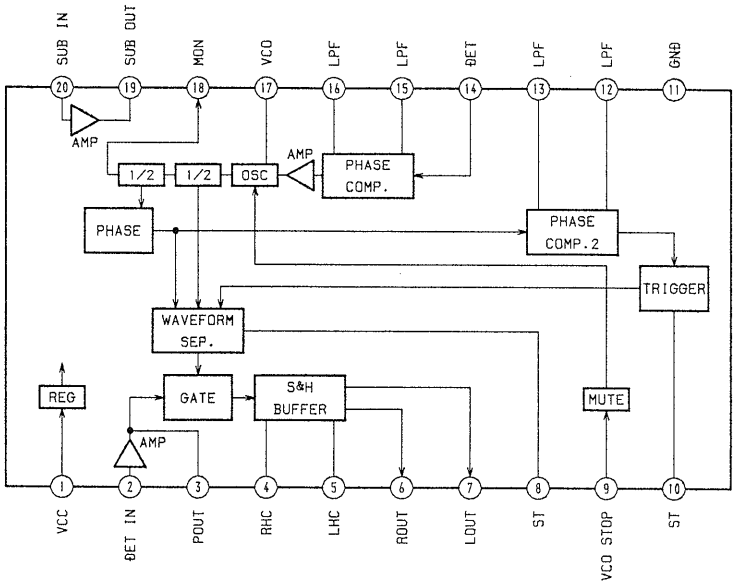
IC302 SAA6579



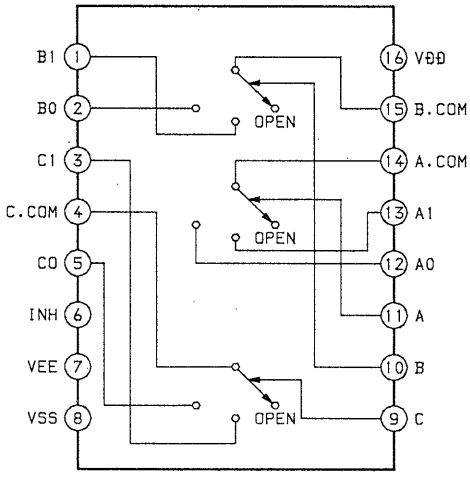
IC601 M66004M6FP



IC1701 IR3R42



IC1703 MC14053BCP



5-2. PRINTED WIRING BOARD

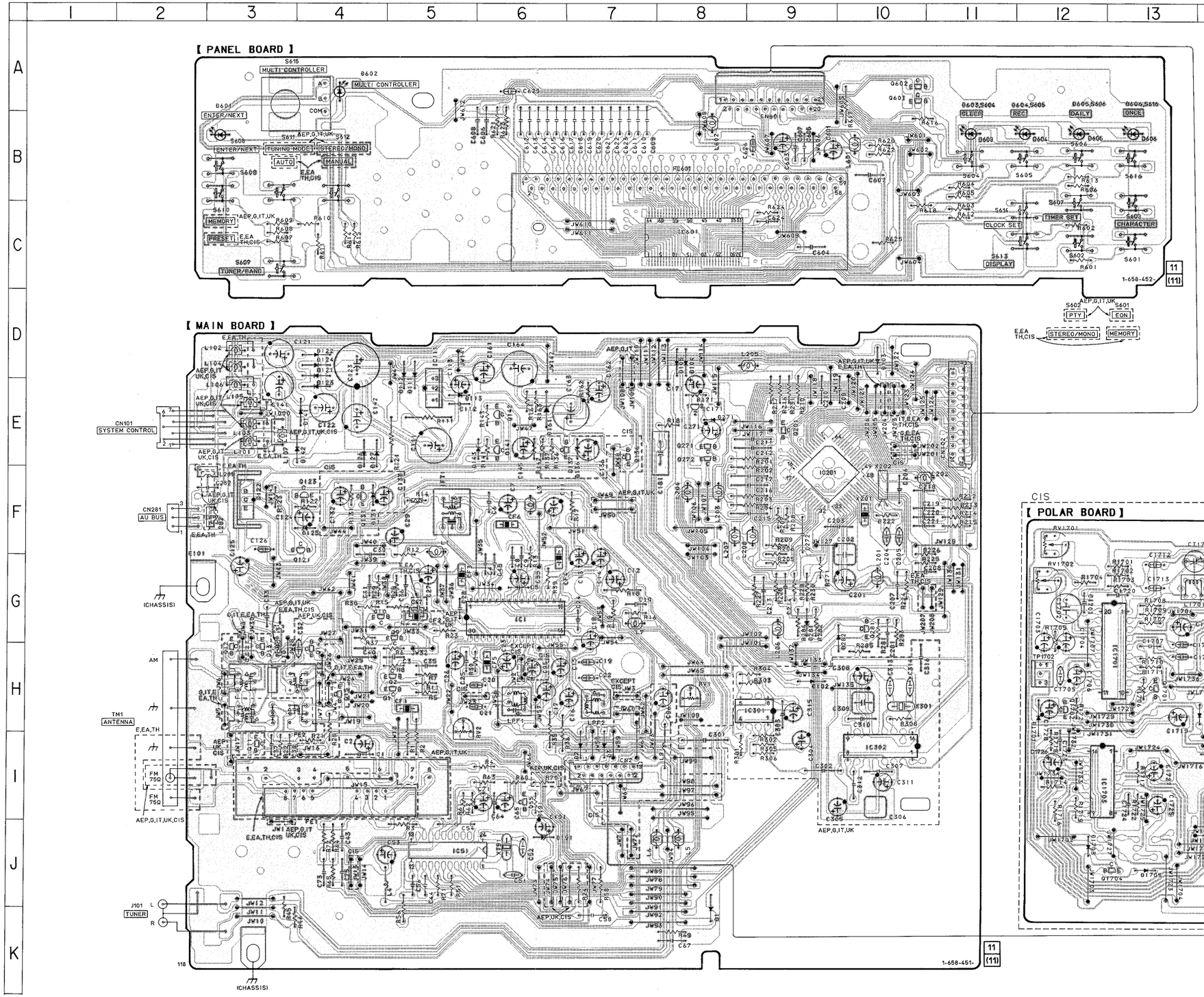
Note:

- ○——— : parts extracted from the component side.
- ——— : parts extracted from the conductor side.
- △ : internal component.
- ▭ : Pattern from the side which enable seeing.

- Abbreviation
  - G : German model.
  - IT : Italian model.
  - EA : Saudi Arabia model.
  - TH : Thailand model.

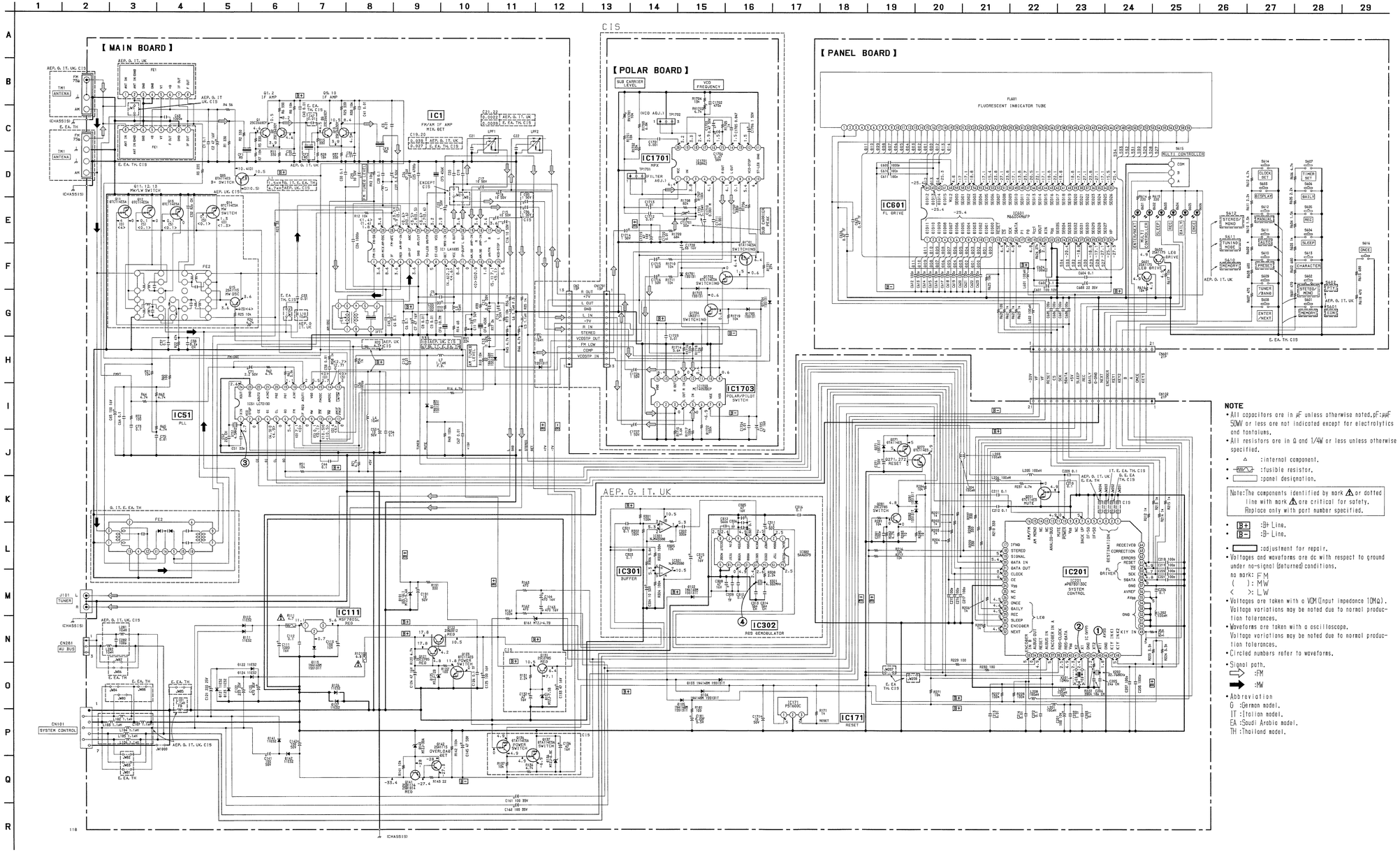
- **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D1	K-8	IC1	G-6
D2	I-7	IC51	J-5
D3	I-7	IC111	E-5
D102	H-9	IC171	E-8
D103	D-10	IC201	F-9
D104	D-8	IC301	H-9
D105	D-8	IC302	I-10
D111	D-5	IC601	C-8
D112	D-5	IC1701	H-3
D113	E-5	IC1703	I-12
D121	E-4		
D122	D-4	Q1	H-5
D123	E-4	Q2	H-5
D124	D-4	Q9	G-5
D125	F-4	Q10	G-4
D126	E-4	Q11	I-3
D127	E-4	Q12	H-3
D131	F-4	Q13	H-3
D136	E-7	Q14	H-4
D141	E-4	Q15	H-4
D142	E-4	Q55	I-6
D143	E-6	Q121	F-4
D161	E-6	Q122	F-3
D191	J-6	Q123	F-4
D271	E-8	Q131	F-4
D281	G-9	Q136	E-7
D282	G-10	Q137	E-7
D601	B-3	Q141	E-6
D602	A-4	Q142	E-6
D603	B-11	Q201	E-9
D604	B-12	Q271	E-8
D605	B-12	Q272	E-8
D606	B-13	Q281	G-10
D1701	H-12	Q601	A-10
D1703	J-12	Q602	A-10
D1704	H-14	Q1701	H-13
D1705	J-13	Q1702	H-12
		Q1704	J-13



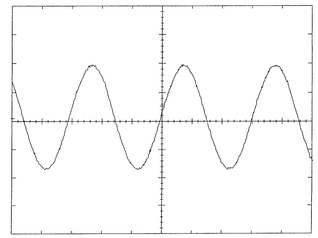
5-3. SCHEMATIC DIAGRAM

• See page 6 for IC Block Diagrams.
• See page 17 for IC Pin Function. (IC201)

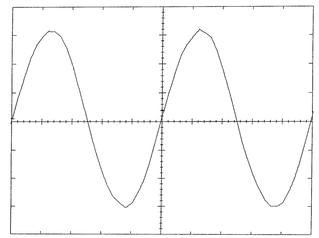

【MAIN BOARD】
【POLAR BOARD】
【PANEL BOARD】
CIS
AEP, G, IT, UK
IC1
IC51
IC111
IC171
IC201
IC301
IC302
IC601
IC1701
IC1703
NOTE
• All capacitors are in μF unless otherwise noted. pF: pμF
50WV or less are not indicated except for electrolytics and tantalums.
• All resistors are in Ω and 1/4W or less unless otherwise specified.
• △ : internal component.
• : fusible resistor.
• : panel designation.
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.
• B+ : B+ Line.
• B− : B− Line.
• : adjustment for repair.
• Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
no mark: FM
( ): MW
< >: LW
• Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
• Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
• Circled numbers refer to waveforms.
• Signal path.
: FM
: MW
• Abbreviation
G : German model.
IT : Italian model.
EA : Saudi Arabic model.
TH : Thailand model.

• Waveforms

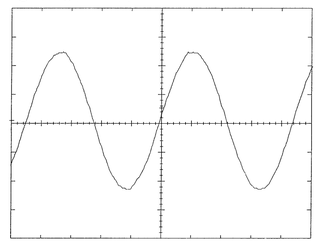
① IC201 ㊽ pin 1.8 Vp-p 32.768 kHz



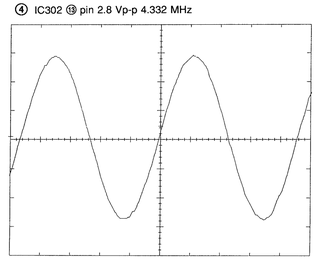
② IC201 ㊾ pin 3.1 Vp-p 10 MHz



③ IC51 ① pin 2.4 Vp-p 4.5 MHz



④ IC302 ⑲ pin 2.8 Vp-p 4.332 MHz



5-4. IC PIN FUNCTION

- **IC201 SYSTEM CONTROL (μPD78013GC)**

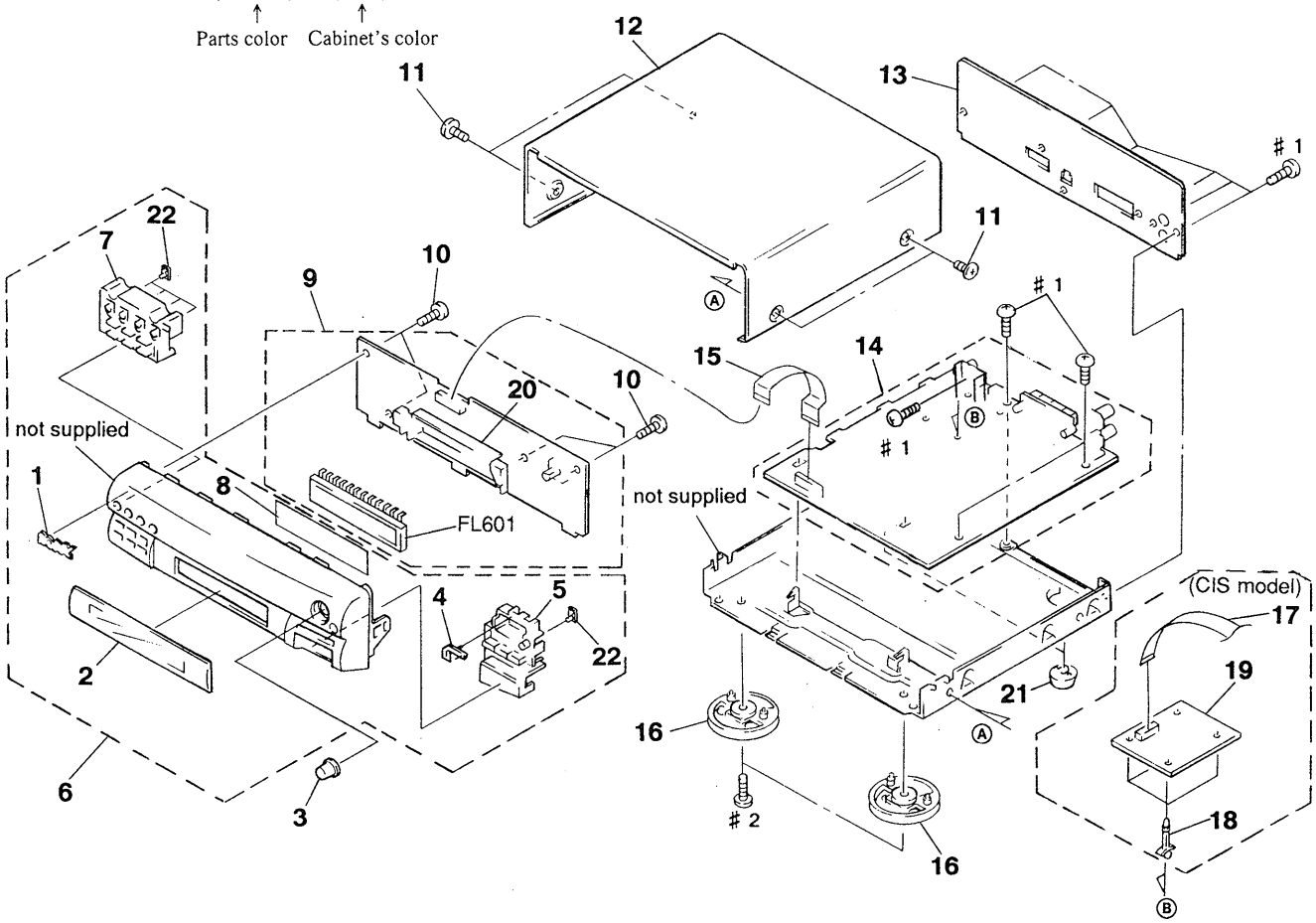
Pin No.	Pin Name	I/O	Function
1	DESTINATION	I	Destination selection input.
2	DESTINATION	I	
3	DESTINATION	I	
4	DESTINATION	I	
5	IF +50	I	Not used. (Ground)
6	IF –50	O	
7	BACK UP	I	Back up mode input.
8	NC	–	Not used. (open)
9	Vss	–	Ground
10	$\overline{\text{POWER}}$	O	Power ON/OFF switch control.
11	MUTE	O	Mute output.
12	ANALOG BUS	–	Not used. (open)
13	NC	–	
14	NC	–	
15	AM MONO	–	
16	AM/FM	–	
17	IFNG	–	
18	STEREO	I	STEREO signal input.
19	SIGNAL	I	TUNED signal input.
20	DATA IN	I	Data input. (LC72130, PLL)
21	DATA OUT	O	Data output. (LC72130, PLL)
22	CLOCK	O	Clock output. (LC72130, PLL)
23	CE	O	Chip Enable output. (LC72130, PLL)
24	Vss	–	Ground
25	NC	–	Not used. (open)
26	NC	–	
27	ONCE	O	LED drive output.
28	DAILY	O	
29	REC	O	
30	SLEEP	O	
31	ENCODER	O	
32	NEXT	O	
33	ENCODER IN B	I	ENCODER input. (B)
34	AU BUS OUT	O	Audio bus output.
35	RESET	I	SYSTEM RESET input.
36	AU BUS IN	I	Audio bus input.
37	ENCODER IN A	I	ENCODER input. (A)
38	RDS-CLOCK	I	RDS clock input.
39	RDS-DATA	I	RDS data input.
40	VDD	–	Power supply 5V.

Pin No.	Pin Name	I/O	Function
41	X2	O	System main clock. (10 MHz)
42	X1	I	
43	GND	–	Ground
44	XT2	O	System sub clock. (32.768 kHz)
45	XT1	I	
46	GND	–	Ground
47	KEY IN K1	I	Key input. (analog)
48	KEY IN K2	I	
49	KEY IN	I	
50	GND	–	Ground
51	GND	–	
52	GND	–	
53	GND	–	
54	GND	–	
55	AV_{DD}	–	Analog power supply +5V.
56	AV_{REF}	–	Analog system reference voltage input.
57	GND	–	Ground
58	SDATA	O	Fluorescent tube data output. (IC601)
59	SCK	O	Fluorescent tube clock output. (IC601)
60	$\overline{CS}$	O	Fluorescent tube chip select signal output. (IC601)
61	RESET	O	Fluorescent tube reset signal output. (IC601)
62	ERRORS	I	Note used. (open)
63	CORRECTION	O	
64	RECEIVED	O	

SECTION 6
EXPLODED VIEW

NOTE:

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ Parts color ↑ Cabinet's color
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation
  G : German model
  IT : Italian model
  EA : Saudi Arabia model
  TH : Thailand model



Ref. No.	Part No.	Description	Remark
1	4-962-708-11	EMBLEM (4-A), SONY	
2	X-4946-909-1	WINDOW (FL) ASSY (for SILVER)	
2	X-4946-912-1	WINDOW (FL) ASSY (for BLACK)	
3	4-977-680-11	KNOB (JOG) (GRAY)... (SILVER)	
3	4-977-680-21	KNOB (JOG) (BLACK)... (BLACK)	
4	4-977-705-11	INDICATOR (JOG)	
5	4-977-704-11	BUTTON (BAND) (GRAY)... (SILVER)	(AEP, UK, G, IT)
5	4-977-704-21	BUTTON (BAND) (GRAY)... (SILVER)	(E, CIS, EA, TH)
5	4-977-704-31	BUTTON (BAND) (BLACK)... (BLACK)	(AEP, UK, G, IT)
6	X-4946-594-1	PANEL ASSY (S), FRONT (SILVER) (E, EA)	
6	X-4946-834-1	PANEL ASSY (BP), FRONT (BLACK)	(AEP, UK, G, IT)
6	X-4946-956-1	PANEL ASSY (SP), FRONT (SILVER) (CIS, TH)	
6	X-4946-965-1	PANEL ASSY (SP), FRONT (SILVER)	(AEP, UK, G, IT)
7	4-977-703-11	BUTTON (TIMER) (GRAY)... (SILVER)	(AEP, UK, G, E, CIS, EA, TH)
7	4-977-703-21	BUTTON (TIMER) (BLACK)... (BLACK)	(AEP, UK, G, IT)
8	4-979-353-11	FILTER (MD)	
* 9	A-4378-851-A	PANEL BOARD, COMPLETE (E, EA, TH)	
* 9	A-4378-864-A	PANEL BOARD, COMPLETE (AEP, UK, G, IT, CIS)	
10	4-951-620-01	SCREW (2.6X8), +BVTP	
11	3-363-099-01	SCREW (CASE 3 TP2)	
* 12	4-970-927-21	CASE (BLACK)	
* 12	4-970-927-41	CASE (SILVER)	
* 13	4-978-999-01	PANEL, BACK (E)	
* 13	4-978-999-11	PANEL, BACK (Made in France)	(AEP, UK, G, IT, CIS)
* 13	4-978-999-21	PANEL, BACK (Made in Malaysia) (AEP, UK)	
* 13	4-978-999-31	PANEL, BACK (EA)	
* 13	4-978-999-41	PANEL, BACK (TH)	
* 14	A-4378-850-A	MAIN BOARD, COMPLETE (E, EA, TH)	
* 14	A-4378-863-A	MAIN BOARD, COMPLETE (AEP, UK)	
* 14	A-4378-865-A	MAIN BOARD, COMPLETE (G)	
* 14	A-4389-478-A	MAIN BOARD, COMPLETE (IT)	
* 14	A-4389-479-A	MAIN BOARD, COMPLETE (CIS)	
15	1-773-144-11	WIRE (FLAT TYPE) (21 CORE)	
16	4-977-699-11	LEG (F)	
17	1-751-688-11	WIRE (FLAT TYPE) (13 CORE) (CIS)	
18	4-924-098-91	HOLDER, PC BOARD (CIS)	
* 19	A-4389-480-A	POLAR BOARD, COMPLETE (CIS)	
* 20	4-979-798-01	HOLDER (FL)	
21	4-965-822-01	FOOT	
22	4-977-674-11	INDICATOR (ENTER)	
FL601	1-517-368-11	INDICATOR TUBE, FLUORESCENT	

MAIN

SECTION 7
ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- SEMICONDUCTORS
  In each case, u: μ , for example:
  uA...: μA..., uPA...: μPA..., uPB...: μPB..., uPC...: μPC..., uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH
- Abbreviation
  G : German model
  IT : Italian model
  EA : Saudi Arabia model
  TH : Thailand model

Ref. No.	Part No.	Description			Remark
*	A-4378-863-A	MAIN BOARD, COMPLETE (AEP, UK)			
		**********			
*	A-4378-850-A	MAIN BOARD, COMPLETE (E, EA, TH)			
		**********			
*	A-4378-865-A	MAIN BOARD, COMPLETE (G)			
		**********			
*	A-4389-478-A	MAIN BORAD, COMPLETE (IT)			
		**********			
*	A-4389-479-A	MAIN BOARD, COMPLETE (CIS)			
		**********			
	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S			
		< CAPACITOR >			
C1	1-164-159-21	CERAMIC	0.1uF		50V
C2	1-126-967-11	ELECT	47uF	20%	16V
C3	1-162-306-11	CERAMIC	0.01uF	30%	16V
C4	1-164-159-21	CERAMIC	0.1uF		50V
C5	1-164-159-21	CERAMIC	0.1uF		50V
C6	1-164-159-21	CERAMIC	0.1uF		50V
C7	1-126-967-11	ELECT	47uF	20%	16V
C8	1-162-306-11	CERAMIC	0.01uF	30%	16V
C9	1-162-306-11	CERAMIC	0.01uF	30%	16V
C10	1-162-306-11	CERAMIC	0.01uF	30%	16V
C11	1-126-964-11	ELECT	10uF	20%	50V
C12	1-124-902-00	ELECT	0.47uF	20%	50V
C13	1-124-903-11	ELECT	1uF	20%	50V
C14	1-124-903-11	ELECT	1uF	20%	50V
C15	1-126-964-11	ELECT	10uF	20%	50V
C16	1-126-964-11	ELECT	10uF	20%	50V
C17	1-126-964-11	ELECT	10uF	20%	50V
C18	1-126-964-11	ELECT	10uF	20%	50V
C19	1-136-160-00	FILM	0.039uF	5%	50V (AEP, G, IT, UK)
C19	1-136-158-00	FILM	0.027uF	5%	50V (E, EA, TH, CIS)
C20	1-136-160-00	FILM	0.039uF	5%	50V (AEP, G, IT, UK)
C20	1-136-158-00	FILM	0.027uF	5%	50V (E, EA, TH, CIS)
C21	1-137-389-11	FILM	0.0022uF	5%	100V (AEP, G, IT, UK)
C21	1-137-436-11	FILM	0.0039uF	5%	50V (E, EA, TH, CIS)
C22	1-137-389-11	FILM	0.0022uF	5%	100V (AEP, G, IT, UK)
C22	1-137-436-11	FILM	0.0039uF	5%	50V (E, EA, TH, CIS)
C23	1-124-903-11	ELECT	1uF	20%	50V
C24	1-162-294-31	CERAMIC	0.001uF	10%	50V
C25	1-162-600-11	CERAMIC	0.0047uF	30%	16V
C26	1-126-967-11	ELECT	47uF	20%	16V
C27	1-126-962-11	ELECT	3.3uF	20%	50V
C28	1-164-159-21	CERAMIC	0.1uF		50V
C29	1-126-964-11	ELECT	10uF	20%	50V
C30	1-164-159-21	CERAMIC	0.1uF		50V
C32	1-102-527-11	CERAMIC	82PF	5%	50V (AEP, UK, CIS)
C33	1-162-306-11	CERAMIC	0.01uF	30%	16V
C35	1-162-306-11	CERAMIC	0.01uF	30%	16V
C36	1-162-306-11	CERAMIC	0.01uF	30%	16V
C37	1-164-159-21	CERAMIC	0.1uF		50V
C38	1-162-198-31	CERAMIC	8.2PF	10%	50V
C40	1-162-306-11	CERAMIC	0.01uF	30%	16V
C41	1-162-306-11	CERAMIC	0.01uF	30%	16V
C43	1-162-294-31	CERAMIC	0.001uF	10%	50V
C44	1-164-159-21	CERAMIC	0.1uF		50V
C45	1-164-159-21	CERAMIC	0.1uF		50V
C47	1-102-129-00	CERAMIC	0.01uF	10%	50V (E, EA, TH, CIS)
C51	1-102-518-11	CERAMIC	33PF	5%	50V
C52	1-102-959-00	CERAMIC	22PF	5%	50V
C53	1-126-964-11	ELECT	10uF	20%	50V
C54	1-164-159-21	CERAMIC	0.1uF		50V
C55	1-126-933-11	ELECT	100uF	20%	10V
C56	1-162-294-31	CERAMIC	0.001uF	10%	50V
C58	1-162-306-11	CERAMIC	0.01uF	30%	16V
C64	1-164-159-21	CERAMIC	0.1uF		50V
C65	1-126-933-11	ELECT	100uF	20%	16V
C67	1-162-306-11	CERAMIC	0.01uF	30%	16V
C71	1-124-925-11	ELECT	2.2uF	20%	100V
C73	1-164-159-21	CERAMIC	0.1uF		50V
C75	1-162-306-11	CERAMIC	0.01uF	30%	16V
C95	1-124-903-11	ELECT	1uF	20%	50V (CIS)

Ref. No.	Part No.	Description			Remark
C96	1-124-903-11	ELECT	1uF	20%	50V (CIS)
C111	1-126-952-11	ELECT	1000uF	20%	16V
C112	1-164-159-21	CERAMIC	0.1uF		50V
C113	1-126-933-11	ELECT	100uF	20%	10V
C121	1-104-666-11	ELECT	220uF	20%	25V
C122	1-104-666-11	ELECT	220uF	20%	25V
C123	1-126-951-11	ELECT	470uF	20%	35V
C124	1-126-967-11	ELECT	47uF	20%	16V
C125	1-126-933-11	ELECT	100uF	20%	16V
C126	1-136-165-00	FILM	0.1uF	5%	50V
C132	1-126-967-11	ELECT	47uF	20%	16V (CIS)
C133	1-126-967-11	ELECT	47uF	20%	16V (CIS)
C136	1-126-967-11	ELECT	47uF	20%	16V (CIS)
C141	1-126-968-11	ELECT	100uF	20%	50V
C142	1-126-968-11	ELECT	100uF	20%	50V
C145	1-126-967-11	ELECT	47uF	20%	50V
C161	1-126-948-11	ELECT	100uF	20%	35V
C162	1-126-948-11	ELECT	100uF	20%	35V
C163	1-126-935-11	ELECT	470uF	20%	16V
C164	1-126-935-11	ELECT	470uF	20%	16V
C171	1-126-964-11	ELECT	10uF	20%	50V
C181	1-125-705-11	CAPACITOR	0.22F	0	5.5V
C191	1-126-964-11	ELECT	10uF	20%	50V
C201	1-126-933-11	ELECT	100uF	20%	10V
C202	1-136-177-00	FILM	1uF	5%	50V
C203	1-164-159-21	CERAMIC	0.1uF		50V
C204	1-102-953-00	CERAMIC	18PF	5%	50V
C205	1-102-960-00	CERAMIC	24PF	5%	50V
C206	1-164-159-21	CERAMIC	0.1uF		50V
C207	1-162-282-31	CERAMIC	100PF	10%	50V
C208	1-162-294-31	CERAMIC	0.001uF	10%	50V
C209	1-164-159-21	CERAMIC	0.1uF		50V
C210	1-164-159-21	CERAMIC	0.1uF		50V
C211	1-164-159-21	CERAMIC	0.1uF		50V
C212	1-164-159-21	CERAMIC	0.1uF		50V
C213	1-162-306-11	CERAMIC	0.01uF	30%	16V
C214	1-162-306-11	CERAMIC	0.01uF	30%	16V
C215	1-162-282-31	CERAMIC	100PF	10%	50V
C216	1-162-282-31	CERAMIC	100PF	10%	50V
C217	1-162-282-31	CERAMIC	100PF	10%	50V
C218	1-162-282-31	CERAMIC	100PF	10%	50V
C219	1-162-282-31	CERAMIC	100PF	10%	50V
C220	1-162-282-31	CERAMIC	100PF	10%	50V
C221	1-162-282-31	CERAMIC	100PF	10%	50V
C271	1-124-903-11	ELECT	1uF	20%	50V
C272	1-164-159-21	CERAMIC	0.1uF		50V
C281	1-162-282-31	CERAMIC	100PF	10%	50V
C282	1-162-282-31	CERAMIC	100PF	10%	50V (AEP, G, IT, UK, CIS)
C301	1-164-159-21	CERAMIC	0.1uF		50V (AEP, G, IT, UK)
C302	1-162-288-31	CERAMIC	330PF	10%	50V (AEP, G, IT, UK)
C303	1-164-159-21	CERAMIC	0.1uF		50V (AEP, G, IT, UK)
C304	1-126-964-11	ELECT	10uF	20%	50V (AEP, G, IT, UK)
C305	1-126-967-11	ELECT	47uF	20%	16V (AEP, G, IT, UK)
C306	1-136-177-00	FILM	1uF	5%	50V (AEP, G, IT, UK)
C307	1-164-159-21	CERAMIC	0.1uF		50V (AEP, G, IT, UK)
C308	1-126-967-11	ELECT	47uF	20%	16V (AEP, G, IT, UK)
C309	1-136-177-00	FILM	1uF	5%	50V (AEP, G, IT, UK)
C310	1-164-159-21	CERAMIC	0.1uF		50V (AEP, G, IT, UK)
C311	1-124-925-11	ELECT	2.2uF	20%	100V (AEP, G, IT, UK)
C312	1-162-291-31	CERAMIC	560PF	10%	50V (AEP, G, IT, UK)
C313	1-101-884-00	CERAMIC	56PF	5%	50V (AEP, G, IT, UK)
C314	1-101-884-00	CERAMIC	56PF	5%	50V (AEP, G, IT, UK)
C315	1-126-967-11	ELECT	47uF	20%	16V (AEP, G, IT, UK)
C316	1-164-159-21	CERAMIC	0.1uF		50V (AEP, G, IT, UK)

< FILTER >

CF1	1-579-374-71	FILTER, CERAMIC (AEP, G, IT, UK)
CF1	1-567-389-11	FILTER, CERAMIC (E, EA, TH, CIS)
CF2	1-760-393-11	FILTER, CERAMIC (AEP, G, IT, UK)
CF3	1-760-393-11	FILTER, CERAMIC (AEP, G, IT, UK)
CF3	1-567-389-11	FILTER, CERAMIC (E, EA, TH, CIS)
CF4	1-527-981-00	FILTER, CERAMIC
CF5	1-577-075-11	OSCILLATOR, CERAMIC
CF6	1-760-220-11	FILTER, CERAMIC

< CONNECTOR >

* CN2	1-568-832-11	SOCKET, CONNECTOR 13P (CIS)
CN101	1-770-158-21	HOUSING, CONNECTOR 7P (SYSTEM CONTROL)
CN102	1-568-838-11	SOCKET, CONNECTOR 21P
* CN281	1-565-561-11	PIN, CONNECTOR 3P (AU BUS)

< DIODE >

D1	8-719-815-85	DIODE 1S1585
D2	8-719-815-85	DIODE 1S1585
D3	8-719-815-85	DIODE 1S1585 (CIS)
D102	8-719-815-85	DIODE 1S1585 (AEP, G, IT, UK)
D103	8-719-815-85	DIODE 1S1585

MAIN

Ref.No.	Part No.	Description	Remark
D104	8-719-815-85	DIODE 1S1585	
D105	8-719-815-85	DIODE 1S1585	
D111	8-719-200-82	DIODE 11ES2	
D112	8-719-200-82	DIODE 11ES2	
D113	8-719-815-85	DIODE 1S1585	
D121	8-719-200-82	DIODE 11ES2	
D122	8-719-200-82	DIODE 11ES2	
D123	8-719-200-82	DIODE 11ES2	
D124	8-719-200-82	DIODE 11ES2	
D125	8-719-110-31	DIODE RD12ES-B2	
D126	8-719-200-82	DIODE 11ES2	
D127	8-719-200-82	DIODE 11ES2	
D131	8-719-921-63	DIODE MTZJ-7.5B (CIS)	
D136	8-719-109-97	DIODE RD6.8ES-B2 (CIS)	
D141	8-719-200-82	DIODE 11ES2	
D142	8-719-200-82	DIODE 11ES2	
D143	8-719-982-19	DIODE MTZJ-30A	
D161	8-719-010-34	DIODE UZ-4.7BSC	
D191	8-719-109-88	DIODE RD5.6ES-B1	
D271	8-719-815-85	DIODE 1S1585	
D281	8-719-815-85	DIODE 1S1585	
D282	8-719-815-85	DIODE 1S1585	
		< FRONTEND >	
FE1	1-693-253-21	FRONT END (4 GANG) (AEP, G, IT, UK)	
FE1	1-693-090-51	FRONT END (FM) (2 GANG) (E, EA, TH)	
FE1	1-693-244-21	FRONT END (3 GANG) (CIS)	
FE2	1-233-514-11	ENCAPSULATED COMPONENT (AEP, UK, CIS)	
FE2	1-239-634-11	ENCAPSULATED COMPONENT, AM.RF	(G, IT, E, EA, TH)
		< IC >	
IC1	8-759-176-03	IC LA1835	
IC51	8-759-288-54	IC LC72130	
IC111	8-759-231-53	IC TA7805S	
IC171	8-759-165-80	IC PST600C-T	
IC201	8-759-338-81	IC uPD78013GC-652-AB8	
IC301	8-759-634-51	IC M5218AP (AEP, G, IT, UK)	
IC302	8-759-169-99	IC SAA6579 (AEP, G, IT, UK)	
		< IFT >	
IFT1	1-409-636-11	TRANSFORMER, IF(CERAMIC FILTER)	
		< JACK >	
J101	1-770-272-11	JACK, PIN 2P (TUNER)	
		< COIL >	
L1	1-407-500-00	INDUCTOR 4.7mH	(AEP, UK, CIS)
L1	1-410-688-31	INDUCTOR 1.5mH	(G, IT, E, EA, TH)
L3	1-414-183-41	INDUCTOR 10uH	
L4	1-410-509-11	INDUCTOR 10uH	
L5	1-410-397-21	FERRITE BEAD INDUCTOR	
L6	1-410-397-21	FERRITE BEAD INDUCTOR	
L7	1-410-397-21	FERRITE BEAD INDUCTOR	
L9	1-410-509-11	INDUCTOR 10uH	(CIS)
L10	1-414-183-41	INDUCTOR 10uH	(AEP, G, IT, UK)
L101	1-410-397-21	FERRITE BEAD INDUCTOR	(AEP, G, IT, UK, CIS)
L102	1-410-397-21	FERRITE BEAD INDUCTOR	(AEP, G, IT, UK, CIS)
L103	1-410-397-21	FERRITE BEAD INDUCTOR	(AEP, G, IT, UK, CIS)
L104	1-410-397-21	FERRITE BEAD INDUCTOR	(AEP, G, IT, UK, CIS)
L105	1-410-397-21	FERRITE BEAD INDUCTOR	(AEP, G, IT, UK, CIS)
L106	1-410-397-21	FERRITE BEAD INDUCTOR	(AEP, G, IT, UK, CIS)
L107	1-410-397-21	FERRITE BEAD INDUCTOR	(AEP, G, IT, UK, CIS)
L201	1-414-189-31	INDUCTOR 100uH	
L202	1-414-189-31	INDUCTOR 100uH	
L203	1-410-521-11	INDUCTOR 100uH	
L204	1-410-521-11	INDUCTOR 100uH	
L205	1-410-521-11	INDUCTOR 100uH	
L206	1-410-521-11	INDUCTOR 100uH	
L207	1-410-521-11	INDUCTOR 100uH	
L208	1-410-521-11	INDUCTOR 100uH	
L281	1-410-509-11	INDUCTOR 10uH	(AEP, G, IT, UK, CIS)
L282	1-410-509-11	INDUCTOR 10uH	(AEP, G, IT, UK, CIS)
		< FILTER >	
LPF1	1-239-597-11	FILTER, LOW PASS	
LPF2	1-239-597-11	FILTER, LOW PASS	
		< TRANSISTOR >	
Q1	8-729-230-99	TRANSISTOR 2SC2669-OY	
Q2	8-729-230-99	TRANSISTOR 2SC2669-OY	
Q9	8-729-230-99	TRANSISTOR 2SC2669-OY	
Q10	8-729-230-99	TRANSISTOR 2SC2669-OY	
Q11	8-729-029-67	TRANSISTOR DTC114ESA-TP	(AEP, UK, CIS)
Q12	8-729-029-67	TRANSISTOR DTC114ESA-TP	(AEP, UK, CIS)
Q13	8-729-029-67	TRANSISTOR DTC114ESA-TP	(AEP, UK, CIS)
Q14	8-729-029-67	TRANSISTOR DTC114ESA-TP	(AEP, UK, CIS)
Q15	8-729-119-76	TRANSISTOR 2SA1175-HFE	(AEP, UK, CIS)
Q55	8-729-029-21	TRANSISTOR DTA114ESA-TP	
Q121	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q122	8-729-209-15	TRANSISTOR 2SD2012	
Q123	8-729-029-67	TRANSISTOR DTC114ESA-TP	
Q131	8-729-119-78	TRANSISTOR 2SC2785-HFE	(CIS)
Q136	8-729-029-21	TRANSISTOR DTA114ESA-TP	(CIS)
Q137	8-729-029-21	TRANSISTOR DTA114ESA-TP	(CIS)
Q141	8-729-118-00	TRANSISTOR 2SB1116-L	
Q142	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q201	8-729-029-67	TRANSISTOR DTC114ESA-TP	
Q271	8-729-029-21	TRANSISTOR DTA114ESA-TP	

Ref.No.	Part No.	Description				Remark
Q272	8-729-029-67	TRANSISTOR	DTC114ESA-TP			
Q281	8-729-119-78	TRANSISTOR	2SC2785-HFE			
		< RESISTOR >				
R1	1-249-411-11	CARBON	330	5%	1/4W	
R2	1-249-411-11	CARBON	330	5%	1/4W	
R3	1-247-815-91	CARBON	220	5%	1/4W	
R4	1-249-402-11	CARBON	56	5%	1/4W	
R5	1-249-411-11	CARBON	330	5%	1/4W	
R6	1-249-411-11	CARBON	330	5%	1/4W	
R7	1-249-432-11	CARBON	18K	5%	1/4W	
R8	1-249-432-11	CARBON	18K	5%	1/4W	
R11	1-249-411-11	CARBON	330	5%	1/4W	
R12	1-249-429-11	CARBON	10K	5%	1/4W	
R13	1-249-442-11	CARBON	510	5%	1/4W	
R14	1-249-403-11	CARBON	68	5%	1/4W	
R15	1-249-411-11	CARBON	330	5%	1/4W	
R16	1-249-425-11	CARBON	4.7K	5%	1/4W	
R17	1-247-842-11	CARBON	3K	5%	1/4W	
R18	1-249-429-11	CARBON	10K	5%	1/4W	
R19	1-249-429-11	CARBON	10K	5%	1/4W	
R21	1-249-429-11	CARBON	10K	5%	1/4W	
R22	1-249-437-11	CARBON	47K	5%	1/4W	
R23	1-249-399-11	CARBON	33	5%	1/4W	
R24	1-249-425-11	CARBON	4.7K	5%	1/4W	(AEP, UK, CIS)
R25	1-249-429-11	CARBON	10K	5%	1/4W	(AEP, UK, CIS)
R28	1-249-432-11	CARBON	18K	5%	1/4W	
R29	1-249-411-11	CARBON	330	5%	1/4W	
R35	1-249-417-11	CARBON	1K	5%	1/4W	
R36	1-249-417-11	CARBON	1K	5%	1/4W	
R37	1-249-411-11	CARBON	330	5%	1/4W	
R38	1-249-432-11	CARBON	18K	5%	1/4W	
R39	1-249-393-11	CARBON	10	5%	1/4W	(AEP, UK, CIS)
R39	1-249-401-11	CARBON	47	5%	1/4W	(G, IT, E, EA, TH)
R45	1-249-425-11	CARBON	4.7K	5%	1/4W	
R46	1-249-425-11	CARBON	4.7K	5%	1/4W	
R49	1-249-441-11	CARBON	100K	5%	1/4W	
R51	1-249-429-11	CARBON	10K	5%	1/4W	
R56	1-249-417-11	CARBON	1K	5%	1/4W	
R58	1-249-417-11	CARBON	1K	5%	1/4W	
R60	1-249-405-11	CARBON	100	5%	1/4W	
R61	1-249-423-11	CARBON	3.3K	5%	1/4W	
R62	1-249-425-11	CARBON	4.7K	5%	1/4W	
R63	1-249-425-11	CARBON	4.7K	5%	1/4W	
R64	1-249-425-11	CARBON	4.7K	5%	1/4W	
R65	1-249-425-11	CARBON	4.7K	5%	1/4W	
R70	1-249-425-11	CARBON	4.7K	5%	1/4W	(AEP, UK, CIS)
R71	1-249-425-11	CARBON	4.7K	5%	1/4W	
R72	1-247-807-31	CARBON	100	5%	1/4W	
⚠R111	1-217-641-00	FUSIBLE	4.7	5%	1/4W	F
⚠R121	1-217-642-81	FUSIBLE	6.8	5%	1/4W	F
R122	1-247-807-31	CARBON	100	5%	1/4W	
R123	1-249-425-11	CARBON	4.7K	5%	1/4W	
R131	1-249-421-11	CARBON	2.2K	5%	1/4W	(CIS)
R136	1-249-425-11	CARBON	4.7K	5%	1/4W	(CIS)
R137	1-249-429-11	CARBON	10K	5%	1/4W	(CIS)
R141	1-249-429-11	CARBON	10K	5%	1/4W	
R142	1-249-441-11	CARBON	100K	5%	1/4W	
R143	1-247-791-91	CARBON	22	5%	1/4W	
R161	1-249-441-11	CARBON	100K	5%	1/4W	
R162	1-249-413-11	CARBON	470	5%	1/4W	
R163	1-249-413-11	CARBON	470	5%	1/4W	
R171	1-249-417-11	CARBON	1K	5%	1/4W	
R181	1-247-807-31	CARBON	100	5%	1/4W	
R191	1-249-411-11	CARBON	330	5%	1/4W	
R201	1-249-417-11	CARBON	1K	5%	1/4W	
R202	1-249-417-11	CARBON	1K	5%	1/4W	
R203	1-249-417-11	CARBON	1K	5%	1/4W	
R204	1-249-417-11	CARBON	1K	5%	1/4W	
R205	1-249-417-11	CARBON	1K	5%	1/4W	
R206	1-249-417-11	CARBON	1K	5%	1/4W	
R207	1-249-411-11	CARBON	330	5%	1/4W	
R208	1-249-411-11	CARBON	330	5%	1/4W	
R209	1-249-411-11	CARBON	330	5%	1/4W	
R210	1-249-411-11	CARBON	330	5%	1/4W	
R212	1-249-417-11	CARBON	1K	5%	1/4W	
R213	1-249-417-11	CARBON	1K	5%	1/4W	
R214	1-249-417-11	CARBON	1K	5%	1/4W	
R215	1-249-417-11	CARBON	1K	5%	1/4W	
R216	1-249-429-11	CARBON	10K	5%	1/4W	
R217	1-249-429-11	CARBON	10K	5%	1/4W	
R222	1-247-893-11	CARBON	390K	5%	1/4W	
R224	1-249-423-11	CARBON	3.3K	5%	1/4W	
R225	1-249-423-11	CARBON	3.3K	5%	1/4W	
R226	1-249-423-11	CARBON	3.3K	5%	1/4W	
R227	1-249-441-11	CARBON	100K	5%	1/4W	
R228	1-249-441-11	CARBON	100K	5%	1/4W	
R229	1-247-807-31	CARBON	100	5%	1/4W	
R230	1-247-807-31	CARBON	100	5%	1/4W	
R231	1-249-425-11	CARBON	4.7K	5%	1/4W	
R271	1-249-429-11	CARBON	10K	5%	1/4W	
R281	1-249-429-11	CARBON	10K	5%	1/4W	
R282	1-249-425-11	CARBON	4.7K	5%	1/4W	
R283	1-249-393-11	CARBON	10	5%	1/4W	
R284	1-249-429-11	CARBON	10K	5%	1/4W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

MAIN PANEL

Ref. No.	Part No.	Description			Remark
R285	1-249-393-11	CARBON	10	5% 1/4W	
R301	1-249-441-11	CARBON	100K	5% 1/4W	(AEP, G, IT, UK)
R302	1-249-441-11	CARBON	100K	5% 1/4W	(AEP, G, IT, UK)
R303	1-249-441-11	CARBON	100K	5% 1/4W	(AEP, G, IT, UK)
R304	1-249-441-11	CARBON	100K	5% 1/4W	(AEP, G, IT, UK)
R305	1-249-429-11	CARBON	10K	5% 1/4W	(AEP, G, IT, UK)
R306	1-249-426-11	CARBON	5.6K	5% 1/4W	(AEP, G, IT, UK)
R308	1-249-421-11	CARBON	2.2K	5% 1/4W	(AEP, G, IT, UK)
		< VARIABLE RESISTOR >			
RV1	1-238-601-11	RES, ADJ, CARBON 22K			
RV2	1-238-600-11	RES, ADJ, CARBON 10K			
		< TERMINAL >			
TM1	1-537-488-11	TERMINAL BOARD (ANTENNA)			(AEP, G, IT, UK, CIS)
TM1	1-537-238-21	TERMINAL BOARD (ANTENNA) (E, EA, TH)			
		< VIBRATOR >			
X201	1-579-175-11	VIBRATOR, CERAMIC (10MHz)			
X202	1-567-098-41	VIBRATOR, CRYSTAL (32.768KHz)			
X301	1-579-900-21	VIBRATOR, CRYSTAL (4.332MHz)			(AEP, G, IT, UK)
XT51	1-760-549-11	VIBRATOR, CRYSTAL (4.5MHz)			
**********					
*	A-4378-851-A	PANEL BOARD, COMPLETE (E, EA, TH)			
		**********			
*	A-4378-864-A	PANEL BOARD, COMPLETE (AEP, G, IT, UK, CIS)			
		**********			
*	4-979-798-01	HOLDER (FL)			
		< CAPACITOR >			
C601	1-126-933-11	ELECT	100uF	20%	10V
C602	1-164-159-21	CERAMIC	0.1uF		50V
C603	1-104-667-11	ELECT	22uF	20%	35V
C604	1-164-159-21	CERAMIC	0.1uF		50V
C605	1-162-282-31	CERAMIC	100PF	10%	50V
C606	1-162-282-31	CERAMIC	100PF	10%	50V
C607	1-162-282-31	CERAMIC	100PF	10%	50V
C608	1-162-282-31	CERAMIC	100PF	10%	50V
C609	1-162-294-31	CERAMIC	0.001uF	10%	50V
C610	1-162-282-31	CERAMIC	100PF	10%	50V

Ref. No.	Part No.	Description			Remark
C611	1-162-282-31	CERAMIC	100PF	10%	50V
C612	1-162-282-31	CERAMIC	100PF	10%	50V
C613	1-162-282-31	CERAMIC	100PF	10%	50V
C614	1-162-282-31	CERAMIC	100PF	10%	50V
C615	1-162-282-31	CERAMIC	100PF	10%	50V
C616	1-162-282-31	CERAMIC	100PF	10%	50V
C617	1-162-282-31	CERAMIC	100PF	10%	50V
C618	1-162-282-31	CERAMIC	100PF	10%	50V
C619	1-162-282-31	CERAMIC	100PF	10%	50V
C620	1-162-282-31	CERAMIC	100PF	10%	50V
C621	1-162-282-31	CERAMIC	100PF	10%	50V
C622	1-162-282-31	CERAMIC	100PF	10%	50V
C623	1-162-282-31	CERAMIC	100PF	10%	50V
C624	1-162-282-31	CERAMIC	100PF	10%	50V
C625	1-136-173-00	FILM	0.47uF	5%	50V
C626	1-136-173-00	FILM	0.47uF	5%	50V
		< CONNECTOR >			
* CN601	1-568-864-11	SOCKET, CONNECTOR 21P			
		< DIODE >			
D601	8-719-046-44	DIODE SEL5221S (ENTER/NEXT)			
D602	8-719-046-46	DIODE SEL5221S-TH8F (MULTI CONTROLLER)			
D603	8-719-046-43	DIODE SEL5421E-TP15 (SLEEP)			
D604	8-719-046-44	DIODE SEL5221S (REC)			
D605	8-719-046-43	DIODE SEL5421E-TP15 (DAILY)			
D606	8-719-046-43	DIODE SEL5421E-TP15 (ONCE)			
		< FLUORESCENT INDICATOR >			
FL601	1-517-368-11	INDICATOR TUBE, FLUORESCENT			
		< IC >			
IC601	8-759-261-63	IC M66004M6FP			
		< COIL >			
L601	1-414-189-31	INDUCTOR	100uH		
L602	1-414-189-31	INDUCTOR	100uH		
		< TRANSISTOR >			
Q601	8-729-119-76	TRANSISTOR 2SA1175-HFE			
Q602	8-729-119-76	TRANSISTOR 2SA1175-HFE			
		< RESISTOR >			
R601	1-249-413-11	CARBON	470	5% 1/4W	
R602	1-249-415-11	CARBON	680	5% 1/4W	
R603	1-249-417-11	CARBON	1K	5% 1/4W	
R604	1-249-419-11	CARBON	1.5K	5% 1/4W	
R605	1-249-421-11	CARBON	2.2K	5% 1/4W	

Ref.No.	Part No.	Description				Remark
R606	1-249-425-11	CARBON	4.7K	5%	1/4W	
R607	1-249-413-11	CARBON	470	5%	1/4W	
R608	1-249-415-11	CARBON	680	5%	1/4W	
R609	1-249-417-11	CARBON	1K	5%	1/4W	
R610	1-249-419-11	CARBON	1.5K	5%	1/4W	
R611	1-249-421-11	CARBON	2.2K	5%	1/4W	
R612	1-249-425-11	CARBON	4.7K	5%	1/4W	
R613	1-249-415-11	CARBON	680	5%	1/4W	
R614	1-247-815-91	CARBON	220	5%	1/4W	
R615	1-247-815-91	CARBON	220	5%	1/4W	
R616	1-249-429-11	CARBON	10K	5%	1/4W	
R617	1-249-429-11	CARBON	10K	5%	1/4W	
R618	1-249-413-11	CARBON	470	5%	1/4W	
R620	1-247-807-31	CARBON	100	5%	1/4W	
R621	1-249-417-11	CARBON	1K	5%	1/4W	
R622	1-249-417-11	CARBON	1K	5%	1/4W	
R623	1-249-417-11	CARBON	1K	5%	1/4W	
R624	1-249-434-11	CARBON	27K	5%	1/4W	
R625	1-249-429-11	CARBON	10K	5%	1/4W	
		< SWITCH >				
S601	1-554-303-21	SWITCH, TACTILE (AEP, G, IT, UK:EON) (E, EA, TH, CIS:MEMORY)				
S602	1-554-303-21	SWITCH, TACTILE (AEP, G, IT, UK:PTY) (E, EA, TH, CIS:STEREO/MONO)				
S603	1-554-303-21	SWITCH, TACTILE (DISPLAY)				
S604	1-554-303-21	SWITCH, TACTILE (SLEEP)				
S605	1-554-303-21	SWITCH, TACTILE (REC)				
S606	1-554-303-21	SWITCH, TACTILE (DAILY)				
S607	1-554-303-21	SWITCH, TACTILE (TIMER SET)				
S608	1-554-303-21	SWITCH, TACTILE (ENTER/NEXT)				
S609	1-554-303-21	SWITCH, TACTILE (TUNER/BAND)				
S610	1-554-303-21	SWITCH, TACTILE (AEP, G, IT, UK:MEMORY) (E, EA, TH, CIS:PRESET)				
S611	1-554-303-21	SWITCH, TACTILE (E, EA, TH, CIS:AUTO) (AEP, G, IT, UK:TUNING MODE)				
S612	1-554-303-21	SWITCH, TACTILE (E, EA, TH, CIS:MANUAL) (AEP, G, IT, UK:STEREO/MONO)				
S613	1-554-303-21	SWITCH, TACTILE (CHARACTER)				
S614	1-554-303-21	SWITCH, TACTILE (CLOCK SET)				
S615	1-473-403-11	ENCODER, ROTARY (MULTI CONTROLLER)				
S616	1-554-303-21	SWITCH, TACTILE (ONCE)				
**********						
*	A-4389-480-A	POLAR BOARD, COMPLETE (CIS)				
		**********				
		< CAPACITOR >				
C1701	1-162-294-31	CERAMIC	0.001uF	10%	50V (CIS)	
C1702	1-130-014-00	FILM	470PF	5%	50V (CIS)	
C1703	1-124-902-00	ELECT	0.47uF	20%	50V (CIS)	
C1704	1-124-902-00	ELECT	0.47uF	20%	50V (CIS)	
C1705	1-101-006-00	CERAMIC	0.047uF		50V (CIS)	
C1706	1-124-903-11	ELECT	1uF	20%	50V (CIS)	
C1707	1-162-288-31	CERAMIC	330PF	10%	50V (CIS)	
C1710	1-137-364-11	FILM	0.001uF	5%	50V (CIS)	
C1711	1-137-364-11	FILM	0.001uF	5%	50V (CIS)	
C1712	1-130-736-11	FILM	0.01uF	5%	50V (CIS)	
C1713	1-130-736-11	FILM	0.01uF	5%	50V (CIS)	
C1714	1-124-903-11	ELECT	1uF	20%	50V (CIS)	
C1715	1-124-903-11	ELECT	1uF	20%	50V (CIS)	
C1716	1-124-903-11	ELECT	1uF	20%	50V (CIS)	
C1719	1-126-967-11	ELECT	47uF	20%	16V (CIS)	
C1720	1-162-306-11	CERAMIC	0.01uF	30%	16V (CIS)	
C1723	1-162-306-11	CERAMIC	0.01uF	30%	16V (CIS)	
C1724	1-162-306-11	CERAMIC	0.01uF	30%	16V (CIS)	
C1725	1-126-967-11	ELECT	47uF	20%	16V (CIS)	
C1726	1-124-903-11	ELECT	1uF	20%	50V (CIS)	
C1727	1-124-903-11	ELECT	1uF	20%	50V (CIS)	
C1728	1-126-966-11	ELECT	33uF	20%	16V (CIS)	
		< CONNECTOR >				
* CN1701	1-568-832-11	SOCKET, CONNECTOR 13P (CIS)				
		< TRIMMER >				
CT1701	1-141-260-00	CAP, TRIMMER 50PF (CIS)				
		< DIODE >				
D1701	8-719-815-85	DIODE 1S1585 (CIS)				
D1703	8-719-815-85	DIODE 1S1585 (CIS)				
D1704	8-719-815-85	DIODE 1S1585 (CIS)				
D1705	8-719-815-85	DIODE 1S1585 (CIS)				
		< IC >				
IC1701	8-759-063-04	IC IR3R42 (CIS)				
IC1703	8-759-140-53	IC uPD4053BC (CIS)				
		< COIL >				
L1701	1-409-497-11	COIL (FILTER) (CIS)				
		< TRANSISTOR >				
Q1701	8-729-029-21	TRANSISTOR DTA114ESA-TP (CIS)				
Q1702	8-729-029-67	TRANSISTOR DTC114ESA-TP (CIS)				
Q1704	8-729-029-67	TRANSISTOR DTC114ESA-TP (CIS)				
		< RESISTOR >				
R1701	1-249-432-11	CARBON	18K	5%	1/4W (CIS)	
R1702	1-249-435-11	CARBON	33K	5%	1/4W (CIS)	
R1703	1-249-427-11	CARBON	6.8K	5%	1/4W (CIS)	
R1704	1-247-858-11	CARBON	13K	5%	1/4W (CIS)	

POLAR

Ref. No.	Part No.	Description			Remark
R1705	1-249-417-11	CARBON	1K	5%	1/4W (CIS)
R1706	1-249-417-11	CARBON	1K	5%	1/4W (CIS)
R1707	1-249-441-11	CARBON	100K	5%	1/4W (CIS)
R1708	1-249-440-11	CARBON	82K	5%	1/4W (CIS)
R1709	1-249-439-11	CARBON	68K	5%	1/4W (CIS)
R1710	1-249-429-11	CARBON	10K	5%	1/4W (CIS)
R1711	1-249-429-11	CARBON	10K	5%	1/4W (CIS)
R1714	1-249-426-11	CARBON	5.6K	5%	1/4W (CIS)
R1715	1-249-426-11	CARBON	5.6K	5%	1/4W (CIS)
R1716	1-249-441-11	CARBON	100K	5%	1/4W (CIS)
R1717	1-249-441-11	CARBON	100K	5%	1/4W (CIS)
R1718	1-249-429-11	CARBON	10K	5%	1/4W (CIS)
R1719	1-249-429-11	CARBON	10K	5%	1/4W (CIS)
R1721	1-249-434-11	CARBON	27K	5%	1/4W (CIS)
R1722	1-249-441-11	CARBON	100K	5%	1/4W (CIS)
		< VARIABLE RESISTOR >			
RV1701	1-238-600-11	RES, ADJ, CARBON 10K (CIS)			
RV1702	1-238-599-11	RES, ADJ, CARBON 4.7K (CIS)			
		< TEST PIN >			
* TP1701	1-560-061-00	PIN, CONNECTOR 3P (CIS)			
* TP1702	1-560-061-00	PIN, CONNECTOR 3P (CIS)			
		**********			
		MISCELLANEOUS			
		**********			
15	1-773-144-11	WIRE (FLAT TYPE) (21 CORE)			
17	1-751-688-11	WIRE (FLAT TYPE) (13 CORE) (CIS)			
FL601	1-517-368-11	INDICATOR TUBE, FLUORESCENT			
		**********			
		ACCESSORIES & PACKING MATERIALS			
		**********			
*	4-980-539-01	CUSHION (UPPER)			
*	4-980-540-01	CUSHION (LOWER)			
		**********			
		**********			
		HARDWARE LIST			
		**********			
#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S			
#2	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S			

9-960-499-11

Sony Corporation
Consumer A&V Products Company
Home A&V Products Div.

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Quality Engineering Dept.

ST-EX100

SONY

SERVICE MANUAL

AEP Model
UK Model
E Model

SUPPLEMENT-1

File this supplement with the service manual.

Subject: SERVICING NOTE ADDITION

Switching the Channel Step 9 kHz/10 kHz

1. Turn off the power of the unit.
2. While pressing the ENTER/NEXT button, press the SYSTEM POWER button of the amplifier section to turn on the power.

The value switches between 9 kHz and 10 kHz steps each time the above is carried out.

NOTE:
1) Take note not to switch the above when not required.
2) This switching cannot be performed when power is supplied using service box (PFJ-1).

9-960-499-81

Sony Corporation
Home A&V Products Company

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Engineering Dept. (Shibaura)

TC-EX90/EX100

SERVICE MANUAL

AEP Model
UK Model
E Model

TC-EX90 is the deck section in MHC-EX50/EX90, and TC-EX100 is the deck section in MHC-EX70AV/EX100AV.

Photo : TC-EX100 (SILVER)

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol ⧈ are trademarks of Dolby Laboratories Licensing Corporation.

Model Name Using Similar Mechanism		TC-EX5
Tape Transport Mechanism Type	DECK–A	TCM-190RA12CL
	DECK–B	TCM-190RB52C

SPECIFICATIONS

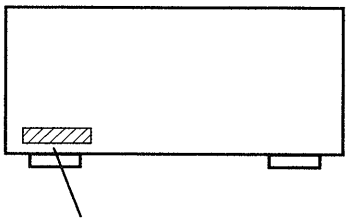
Recording system
4-track 2-channel stereo
Frequency response
(DOLBY NR OFF)
40 – 13,000 Hz (±3 dB),
using Sony TYPE I cassette
40 – 14,000 Hz (±3 dB),
using Sony TYPE II cassette
40 – 15,000 Hz (±3 dB),
using Sony TYPE IV cassette
Wow and flutter
0.1% WRMS ±0.3% (DIN)
Dimensions
Approx. 280 x 122.5 x 280 mm
(11 1/8 x 4 7/8 x 11 1/8 in) (w/h/d)
incl. projecting parts and controls
Mass Approx. 2.8 kg
(6 lb 2 oz)

STEREO CASSETTE DECK

SONY®

MODEL IDENTIFICATION

— BACK PANEL —



TC-EX100 (AEP, UK Model)	: 4-978-260-0□
TC-EX100 (E Model)	: 4-978-260-1□
TC-EX100 (Saudi Arabia Model)	: 4-978-260-2□
TC-EX100 (Thailand Model)	: 4-978-260-3□
TC-EX90 (AEP, UK Model)	: 4-978-260-4□
TC-EX90 (E Model)	: 4-978-260-5□
TC-EX90 (Saudi Arabia Model)	: 4-978-260-6□
TC-EX90 (Thailand Model)	: 4-978-260-7□

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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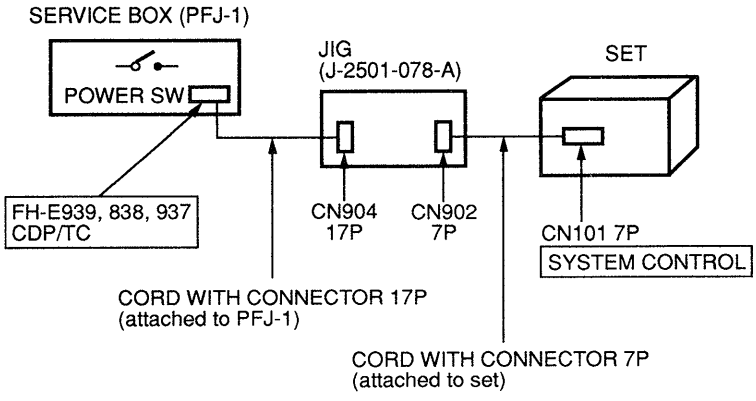
SECTION 1
SERVICING NOTE

How to operate with a single unit.

Normally, this set is not operated with its own.
The exclusive jig (J-2501-078-A) and service box (PFJ-1) are necessary to operate the set with a single unit.
Turn the power set of the service box ON. Then press the ■ button of both DECK A and DECK B at the same time to turn the power on.



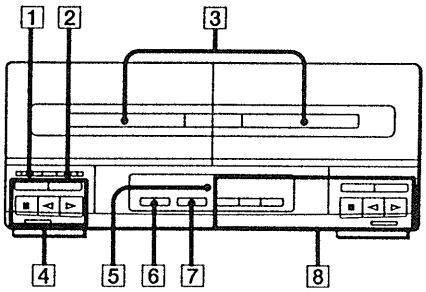
[Tune light on all LED]

Push ■ button of DECK A and O REC MUTE button at the same time. then, all segments of LED turn on the light.
To cancel the mode, push ■ button of DECK A and O REC MUTE button at the same time again.

This section is extracted from instruction manual.

Index to Parts and Controls

Front Panel

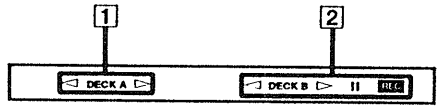


1 DOLBY NR selector (15)
2 DIRECTION MODE selector (14)
3 Cassette compartments (14)
4 Tape operating buttons (for deck A)
- ▷ (front side play) (14)
- ◁ (reverse side play) (14)
- ■ (stop) (14)
- ▶▶ (fast rightward and AMS**) (14)
- ◀◀ (fast leftward and AMS**) (14)
- ⏏ (eject) (14)

5 Display window
6 CD SYNC button (15)
7 DUBBING MODE button (19)
8 Tape operating buttons (for deck B)
- ▷ (front side play) (14)
- ◁ (reverse side play) (14)
- ■ (stop) (14)
- ▶▶ (fast rightward and AMS**) (14)
- ◀◀ (fast leftward and AMS**) (14)
- II PAUSE (14)
- ○ REC MUTE (16)
- ● REC (recording) (16)
- ⏏ (eject) (14)

**AMS: Automatic Music Sensor (14)

Display Window

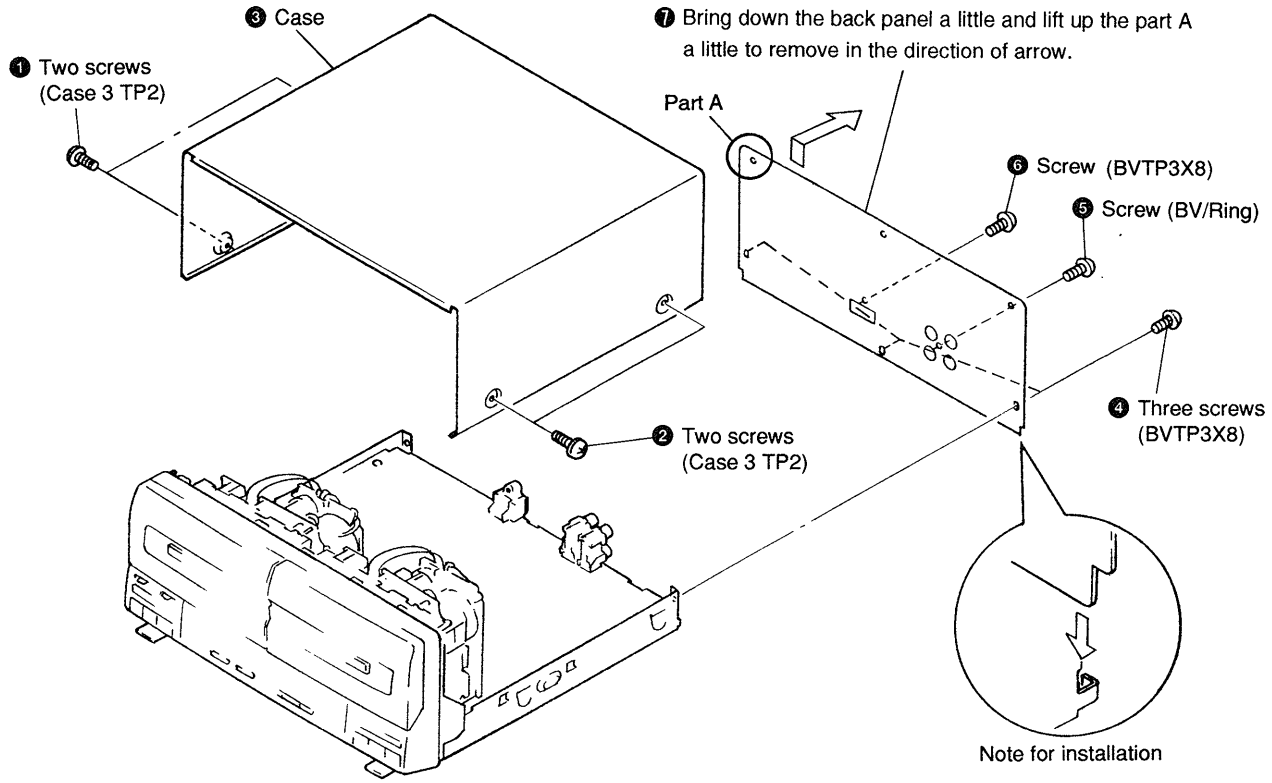


1 Deck A status indication
2 Deck B status indication

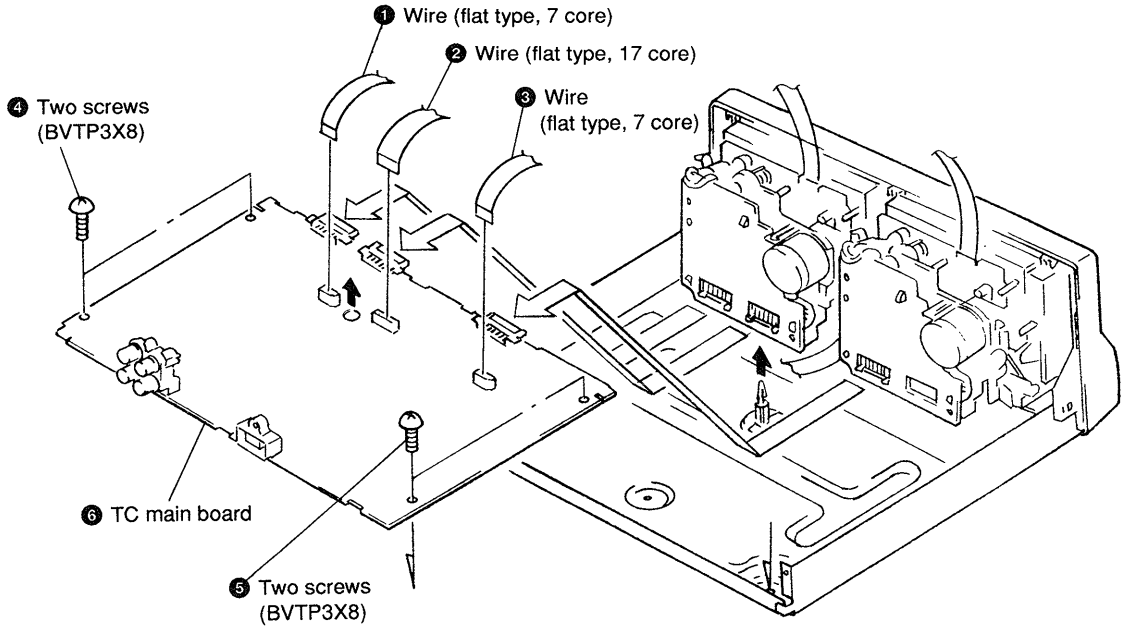
SECTION 3
DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

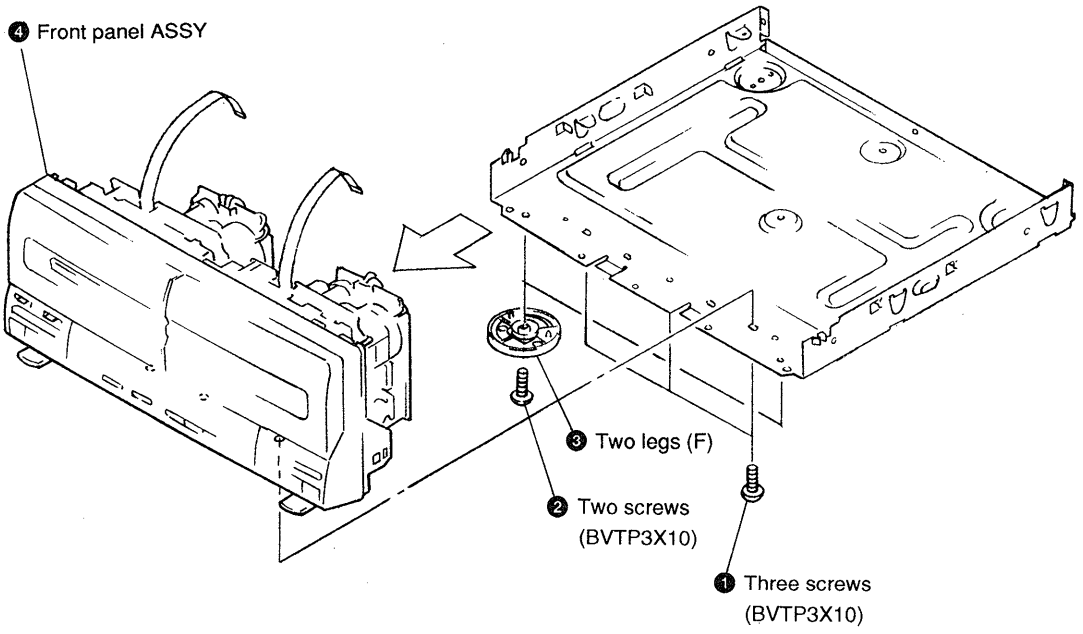
3-1. CASE AND BACK PANEL


❸ Case
❶ Two screws
(Case 3 TP2)
❼ Bring down the back panel a little and lift up the part A
a little to remove in the direction of arrow.
Part A
❻ Screw (BVTP3X8)
❺ Screw (BV/Ring)
❹ Three screws
(BVTP3X8)
❷ Two screws
(Case 3 TP2)
Note for installation

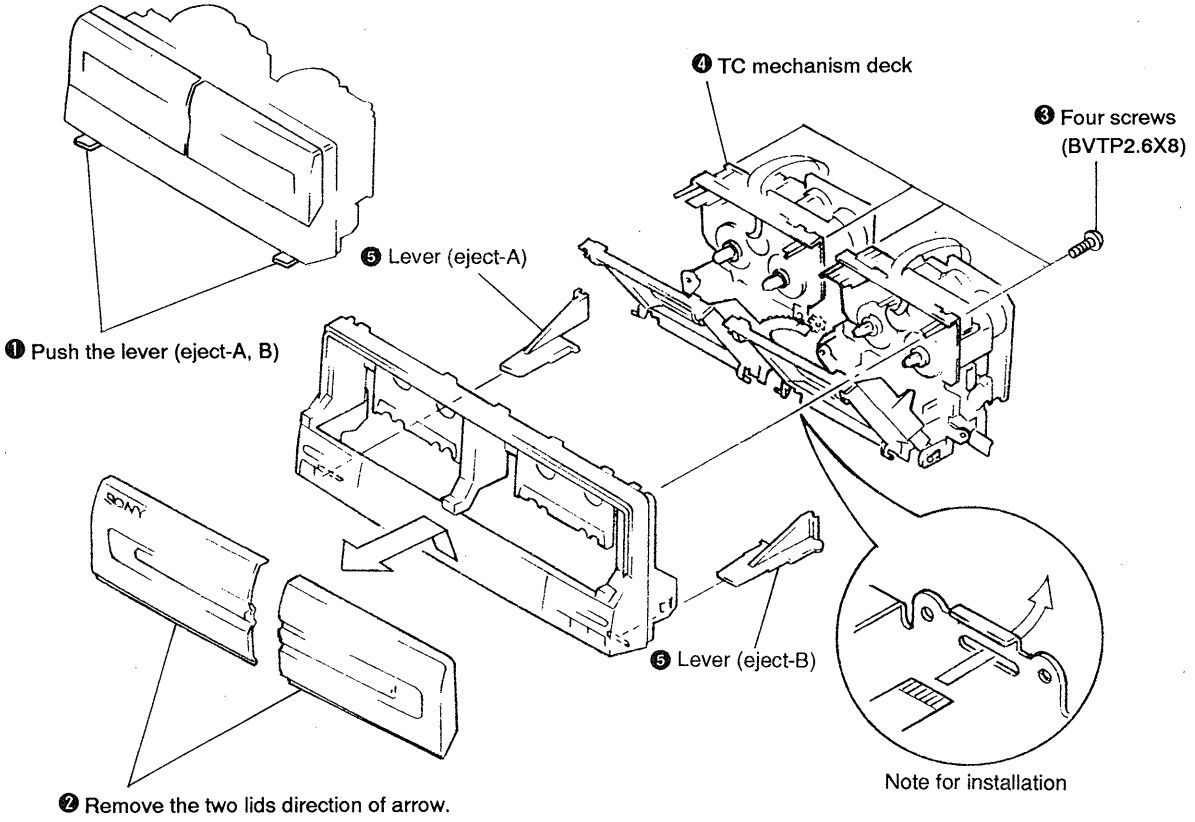
3-2. TC MAIN BOARD



3-3. FRONT PANEL ASSY



3-4. TC MECHANISM DECK



SECTION 4
ADJUSTMENTS

4-1. MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured alcohol-moistened swab :
   record/playback/erase head pinch roller
   rubber belts capstan
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustment.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Torque Measurement

Torque	Torque meter	Meter reading
Forward	CQ-102C	30 to 60 g • cm (0.42 to 0.83 oz • inch)
Forward Back tension	CQ-102C	1 to 5 g • cm (0.014 to 0.069 oz • inch)
Reverse	CQ-102RC	30 to 60 g • cm (0.42 to 0.83 oz • inch)
Reverse Back tension	CQ-102RC	1 to 5 g • cm (0.014 to 0.069 oz • inch)
FF, REW	CQ-201B	65 to 90 g • cm (0.91 to 1.25 oz • inch)

Tape Tension Measurement

Torque meter	Meter reading
CQ-403A	more than 110 g (more than 3.88 oz)

4-2. ELECTRICAL ADJUSTMENTS

PRECAUTION

1. The adjustment should be performed in the publication. (Be sure to male playback adjustment at first.)
2. The adjustments and measurement should be performed for both L-CH and R-CH.
   • Switche position
   DOLBY NR switch : OFF
   DIRECTION MODE switch : ⇆

Test Tape

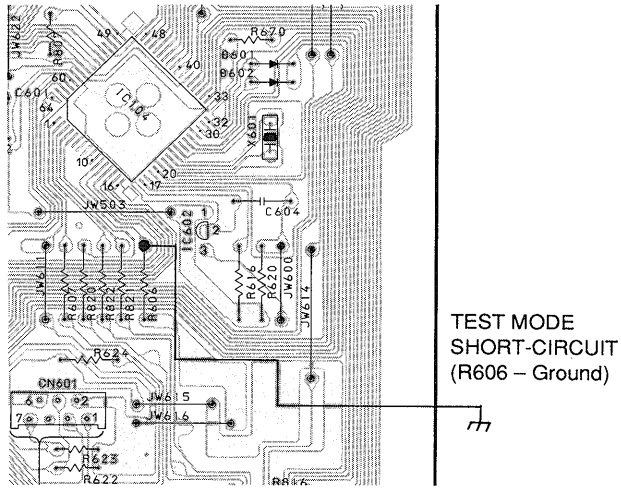
Tape	Contents	Use
P-4-A100	10 kH, –10 dB	Azimuth Adjustment
P-4-L300	315 Hz, 0 dB	PB Level Adjustment
WS-48B	3 kHz, 0 dB	Tape Speed Adjustment

0dB = 0.775V

Test mode

1. If the power supply is TA-EX50/EX70/EX90/EX100. (When AU BUS is alive)
   ① Short-circuit following portion (R606 – Ground) on the TC MAIN board.
   ② Turn the POWER on.
   ③ Open the short-circuit to release test mode.

[TC MAIN BOARD]



2. If the power supply is a jig.
   Turn the power set of the service box ON. Then press the ■ button of both DECK A and DECK B at the same time to turn the power on.

Record/Playback Head Azimuth Adjustment

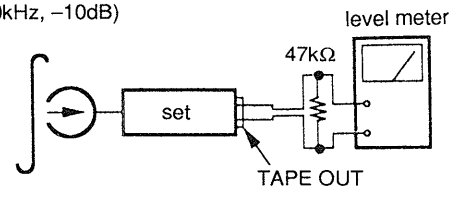
DECK-A **DECK-B**

Note : Perform this adjustment for both decks.

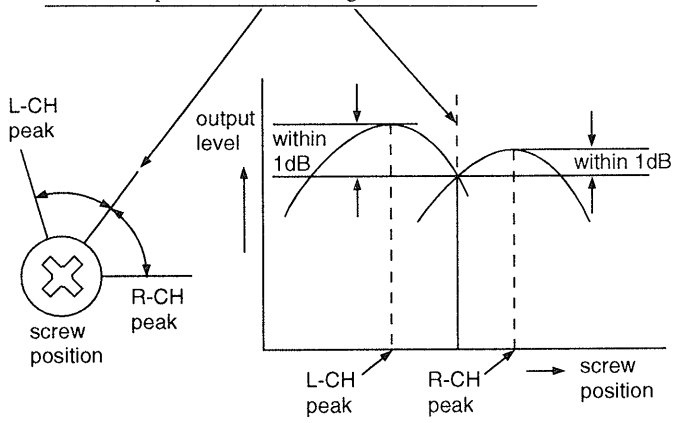
Procedure :

1. Mode : Forward playback

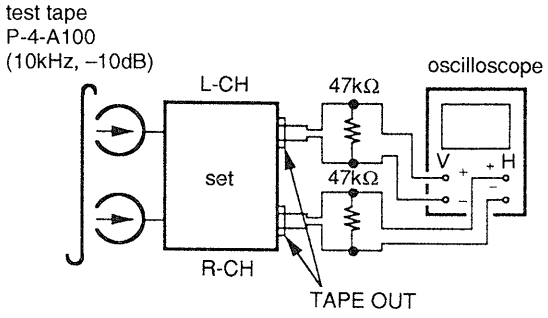
test tape
P-4-A100
(10kHz, –10dB)

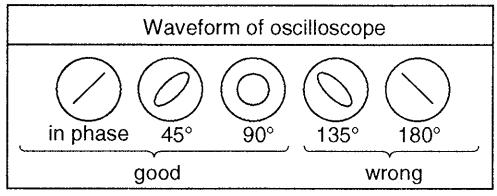


2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1 dB.



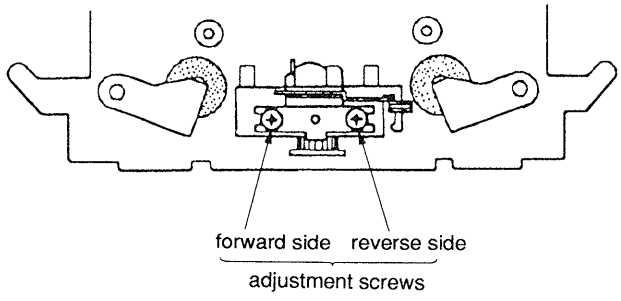
3. Mode : Playback





4. Change the reveres playback mode and repeat the steps 1 to 3.
5. After the adjustment, lock the adjustment screws with suitable locking compound.

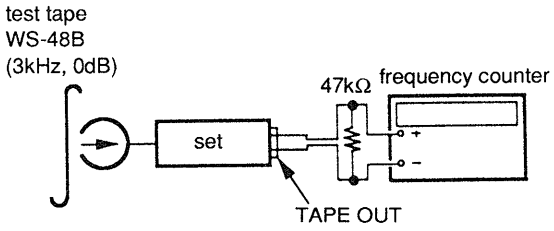
Adjustment Location : — Record/Playback head —



Note : To adjust Azimuth, after take off WINDOW ASSY, ILLUMINATOR and LID ASSY CASSETTE of FRONT PANEL.

Tape Speed Adjustment DECK-A DECK-B

Procedure :
Mode : Forward Playback



(high speed adjustment)
1. Set to FWD playback mode.
2. Press the DUBBING MODE button at HIGH position.
3. Adjust RV72 so that the frequency counter reading becomes 6,000 ± 60 Hz.

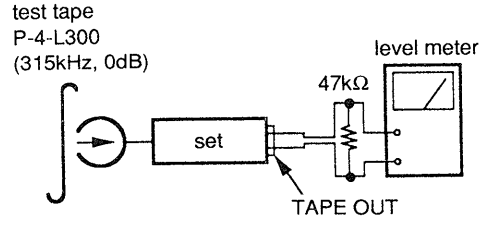
(normal speed adjustment)
1. Set to FWD playback mode.
2. Set the DUBBING MODE button to NORMAL.
3. Adjust RV71 so that the frequency counter reading becomes 3,000 ± 30 Hz.

Frequency difference between the deck A and deck B the beginning of the tape should be within ± 1%.

Adjustment Location : AUDIO board. (See page 9)

Playback Level Adjustment DECK-A DECK-B

Procedure :
Mode : Forward Playback



Adjust RV11 (L-CH) and RV21 (R-CH), so the level meter reading becomes the adjustment Level below.

Adjustment Level :
TAPE OUT level : –7.4 ± 1 dB (0.294 to 0.37 V)

Level difference between channels : within 0.5 dB.

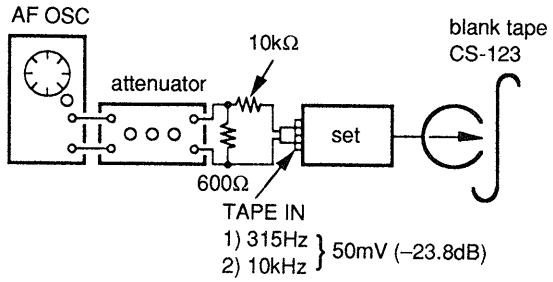
Confirm the TAPE OUT level does not change in playback mode while changing the mode from plaback to stop several times.

AdjustmentLocation : AUDIO board. (See page 9)

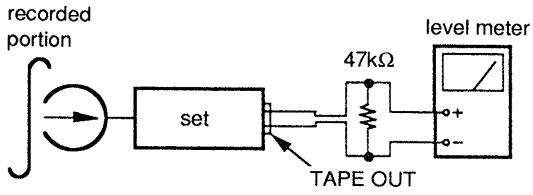
Record Bias Adjustment DECK-B

Procedure :

1. Mode : Record



2. Mode : Playback

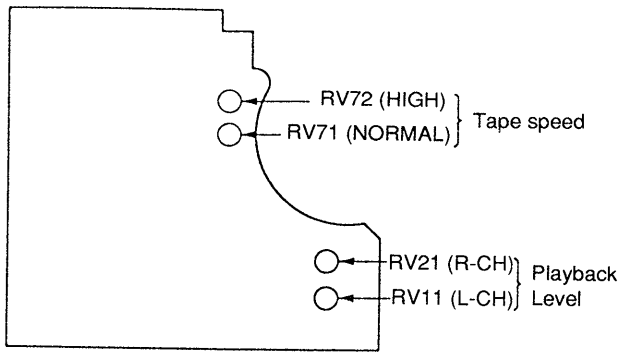


Confirm that the 10 kHz playback output is 0 ± 0.5 dB relative to the 315 Hz output. If necessary, adjust RV12 (L-CH), RV22 (R-CH) and repeat the steps given adove.

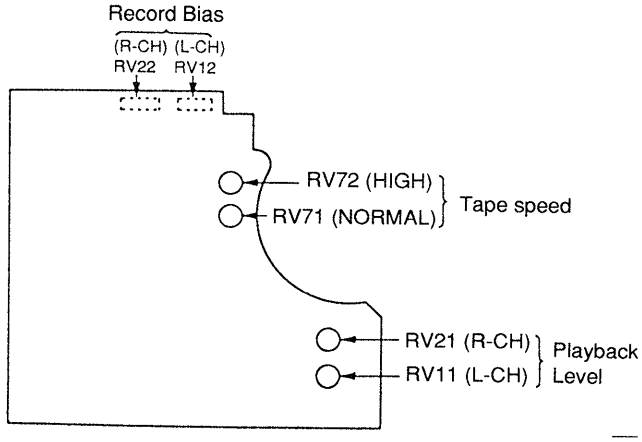
Adjustment Location : AUDIO board. (See page 9)

— Adjustment Parts Location Diagrams —

DECK A :
[MAIN BOARD] — Conductor side —



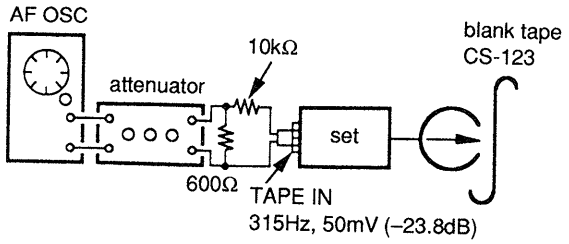
DECK B :
[AUDIO BOARD] — Conductor side —



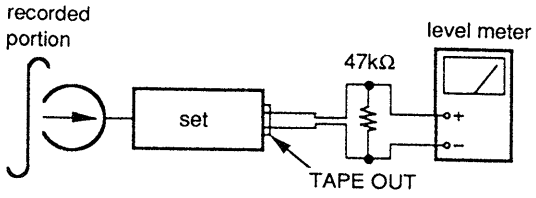
Record Level Adjustment DECK-B

Procedure :

1. Mode : Record



2. Mode : Playback

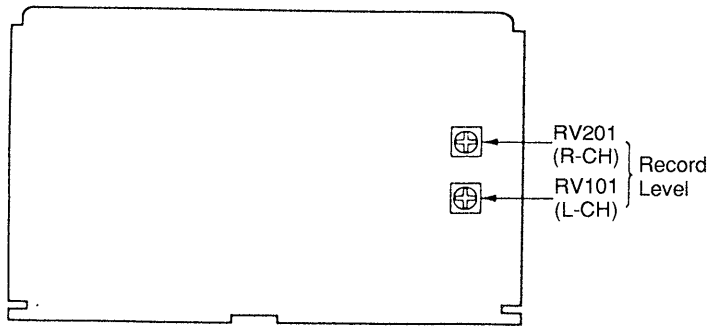


Confirm playback the tape recorded become adjustment level as follows.
If necessary, adjust RV101 (L-CH), RV201 (R-CH) and repeat the steps 1 and 2.

Adjustment level :
TAPE OUT level : –23.8 ± 0.5 dB (47.2 to 53 mV)

Adjustment Location : TC MAIN board. (See page 9)

[TC MAIN BOARD] — Component side —



SECTION 5
DIAGRAMS

5-1. IC PIN FUNCTION

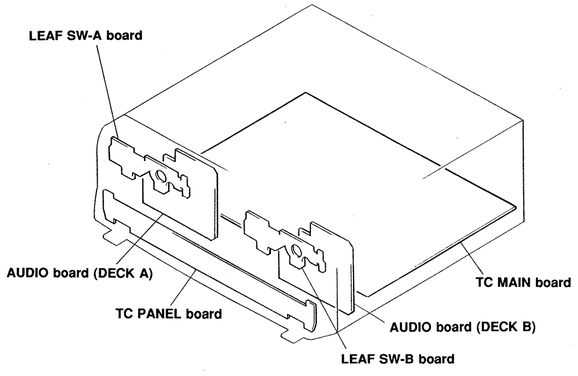
• IC104 M38123M4-118FP SYSTEM CONTROL (TC MAIN BOARD)

Pin No.	Pin Name	I/O	Function
1	B HALF	I	B Half detection input. "L": Presence "H": Nothing
2	KEY 3	I	Key input. (A/D converter analog input)
3	KEY 2	I	
4	KEY 1	I	
5	TEST	I	Electrical adjustment test mode setting. "L": Test mode
6	DISP RST	O	GND
7	DISP SYNC	O	
8	DISP CLK	O	
9	DISP OUT	O	
10	DISP IN	O	
11	B REEL 2	O	Deck B reel motor control output.
12	B REEL 3	O	
13	B REEL 1	O	
14	A REEL 1	O	Deck A reel motor control output.
15	A REEL 3	O	
16	A REEL 2	O	
17	PWR IN	I	+5V power supply input.
18	AUB IN	I	Audio bus input.
19	NRST	I	Microcomputer reset input.
20	AUB OUT	O	Audio bus output.
21	XC OUT	O	Not used. (GND)
22	X IN	I	Oscillator connection pins. (4 MHz)
23	X OUT	O	
24	Vss	–	GND
25	VER	–	
26	PWR OUT	O	Not used. (Open)
27	LINE MUTE	O	Line mute ON/OFF. "L": ON
28	BIAS	O	Bias oscillation control output. "L": ON
29	NC	–	GND
30	DAT FUNC	O	DAT mute output.
31	CD FUNC	O	CD mute output.
32	PASS	O	PASS amplifier switch output to dolby.
33	EQ H/L	O	REC equalizer switching output. "L": High speed "H": Normal speed
34	REC MUTE	O	REC mute output.
35	PB SEL	O	Play mode deck A/B select output. "L": DECK A "H": DECK B
36	AMS G SEL	O	AMS/BS mode select output. "H": AMS mode "L": BS mode
37	1599 MUTE	O	Mute output to IC101 (CXA1599Q). "H": ON "L": OFF
38	NC	–	Not used. (+5V)
39	NR RELAY	O	ALC (Automatic Level Control) control output.
40	CD SYNC	O	CD synchro dubbing LED output. "H": ON "L": OFF

	FF	TRIG	STOP	FWD
REEL 1	H	L	L	H
REEL 2	L	H	L	L
REEL 3	H	H	L	L

Pin No.	Pin Name	I/O	Function
41	DUB H	O	High speed dubbing LED output. "H": ON "L": OFF
42	DUB N	O	Normal speed dubbing LED output. "H": ON "L": OFF
43	PAUSE	O	PAUSE LED output. "H": ON "L": OFF
44	REC	O	REC LED output. "H": ON "L": OFF
45	B◁	O	Deck B REV LED output. "H": ON "L": OFF
46	B▷	O	Deck B FWD LED output. "H": ON "L": OFF
47	A◁	O	Deck A REV LED output. "H": ON "L": OFF
48	A▷	O	Deck A FWD LED output. "H": ON "L": OFF
49	B STOP SW	I	Deck B stop detect input. "H": STOP
50	A STOP SW	I	Deck A stop detect input. "H": STOP
51	+7.5V DET	I	+7.5V power supply detect input.
52	RELAY	O	Control output to REC/PB select output. "H": REC "L": PLAY
53	REC/PB	O	Dolby IC (IC103) REC/PB select output. "H": REC "L": PLAY
54	CAP. MOT H/L	O	Capstan motor HIGH/LOW select output. "H": HIGH "L": LOW
55	B CAP. MOTOR	O	Deck B capstan motor control output. "H": ON "L": OFF
56	A CAP. MOTOR	O	Deck A capstan motor control output. "H": ON "L": OFF
57	V_{DD}	–	+5V power supply.
58	V_{EE}	–	GND
59	AVss	–	
60	V_{REF}	I	A/D converter reference power supply +5V.
61	A HALF	I	Deck A half detect input.
62	BS. REEL IN	I	Deck B reel table signal input.
63	AS. REEL IN	I	Deck A reel table signal input.
64	AMS IN	I	AMS input. "L": No song "H": Song

5-2. CIRCUIT BOARDS LOCATION

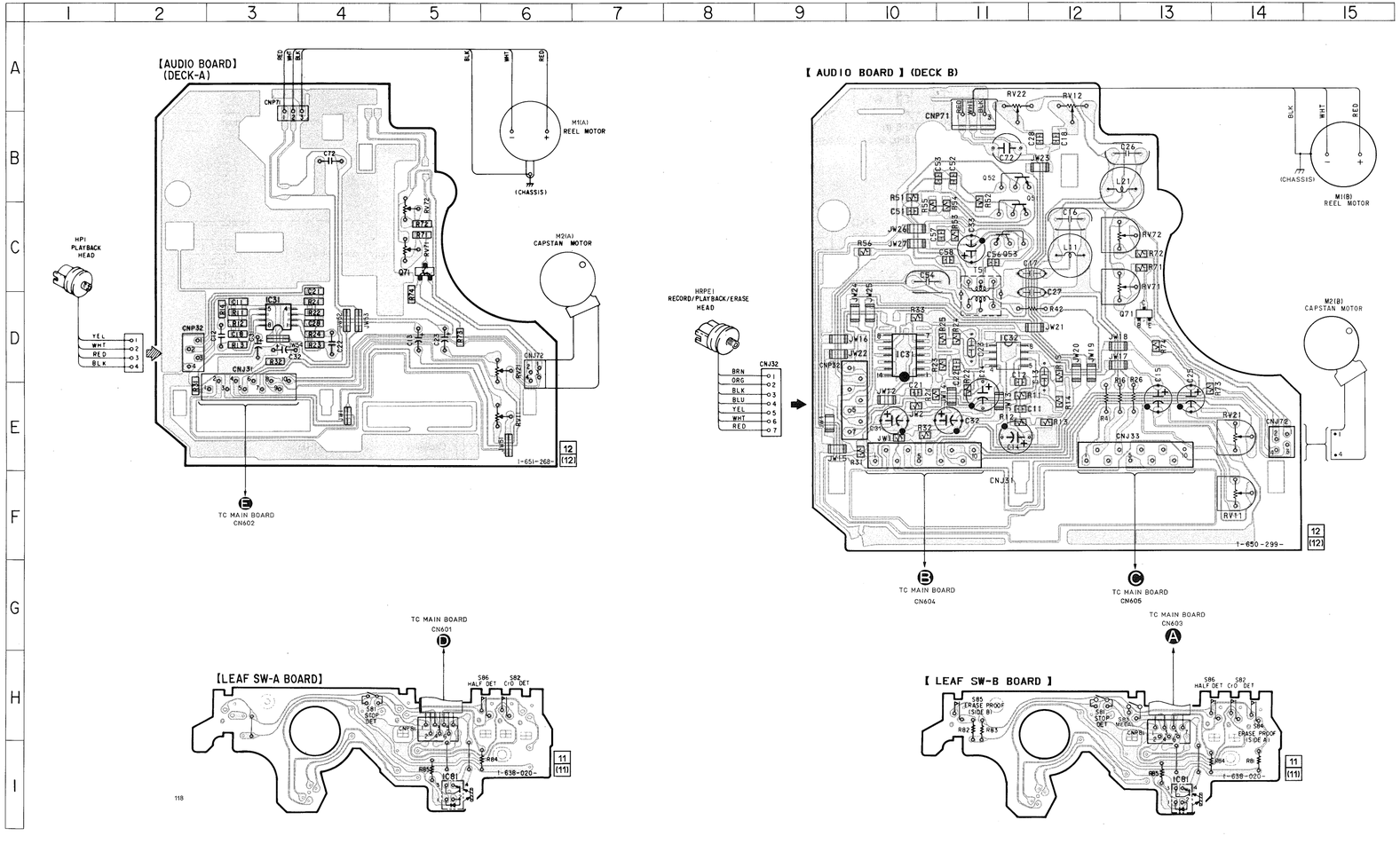


• **Semiconductor Location**

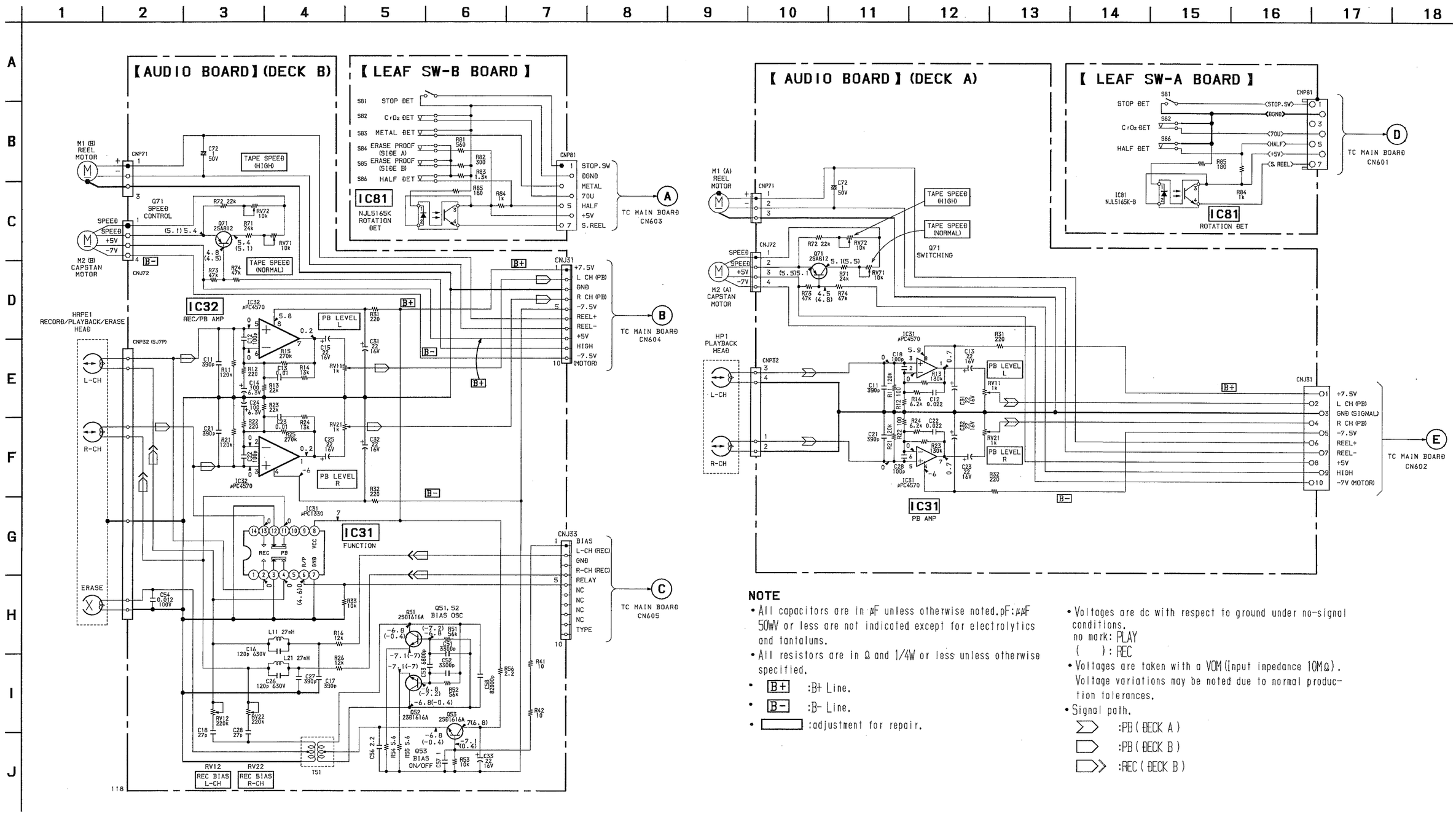
Ref. No.	Location
IC31 (DECK A)	D-3
IC31 (DECK B)	D-10
IC32	D-11
IC81 (DECK A)	I-5
IC81 (DECK B)	I-13
Q51	C-11
Q52	B-11
Q53	C-11
Q71 (DECK A)	C-5
Q71 (DECK B)	D-13

Note:
- ○—— : parts extracted from the component side.
- —— : parts extracted from the conductor side.
- ▨ : Pattern from the side which enable seeing.

5-3. PRINTED WIRING BOARD — AUDIO SECTION —



5-4. SCHEMATIC DIAGRAM — AUDIO SECTION —



NOTE

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- B+ :B+ Line.
- B− :B− Line.
- ▭ :adjustment for repair.
- Voltages are dc with respect to ground under no-signal conditions.
  no mark: PLAY
  ( ): REC
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  - :PB (DECK A)
  - :PB (DECK B)
  - :REC (DECK B)

5-5. PRINTED WIRING BOARD — TC SECTION —

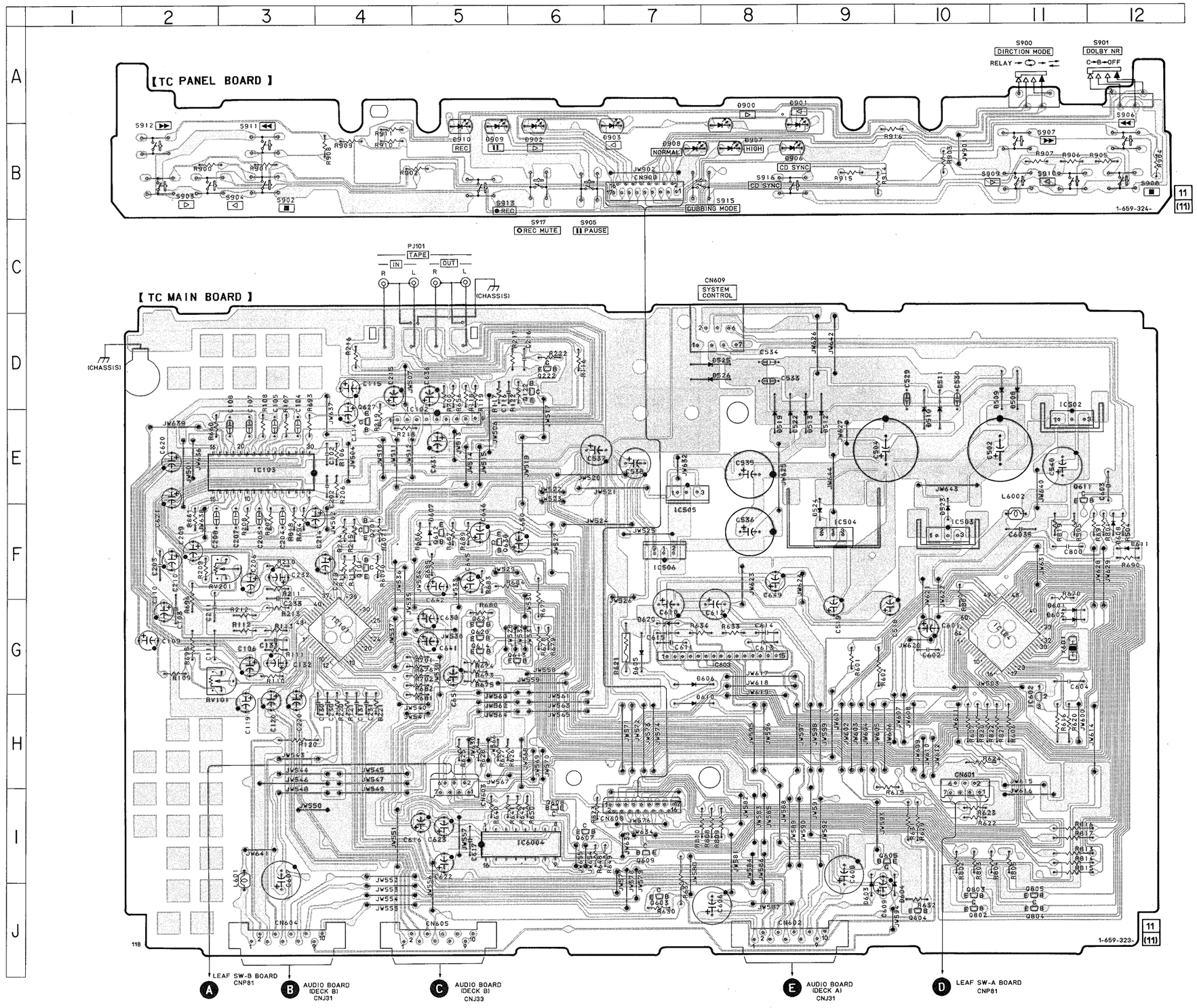
• See page 12 for Circuit Boards Location.

• **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D508	D-11	IC102	E-5
D509	D-11	IC103	E-3
D510	E-10	IC104	G-11
D511	E-10	IC502	E-11
D512	E-9	IC503	F-10
D513	E-9	IC504	F-9
D519	E-8	IC505	E-7
D522	E-8	IC506	F-7
D523	F-10	IC602	H-11
D524	F-9	IC603	G-8
D525	D-8	IC6004	I-6
D526	D-8		
D601	G-11	Q101	F-4
D602	G-11	Q122	D-6
D603	J-9	Q201	F-4
D604	J-9	Q222	D-6
D605	G-7	Q603	J-7
D606	G-7	Q604	J-10
D607	F-5	Q605	I-9
D608	F-12	Q607	I-6
D610	H-7	Q608	I-6
D611	F-12	Q609	I-7
D620	G-7	Q611	F-11
D900	B-8	Q612	F-5
D901	B-8	Q613	G-6
D902	B-6	Q614	G-5
D903	B-7	Q620	G-5
D906	B-8	Q621	G-5
D907	B-8	Q627	E-4
D908	B-7	Q630	F-5
D909	B-5	Q802	J-10
D910	B-5	Q803	J-10
		Q804	J-11
IC101	G-4	Q805	J-11

Note:

- ○—— : parts extracted from the component side.
- —— : parts extracted from the conductor side.
- △ : internal component.
- ▭ : Pattern from the side which enable seeing.

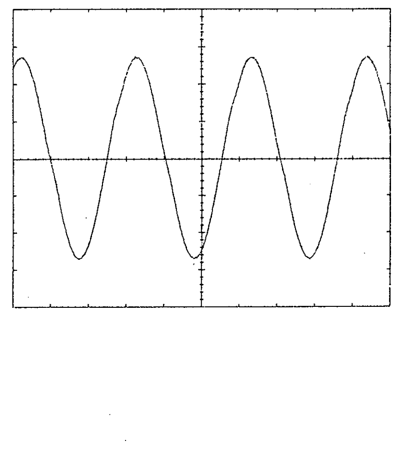


5-6. SCHEMATIC DIAGRAM — TC SECTION —

• See page 10 for IC Pin function. (IC104)
• See page 23 for IC Block Diagrams.

• **Waveform**

① IC104 ㉓ 4.5 Vp-p 4MHz



NOTE

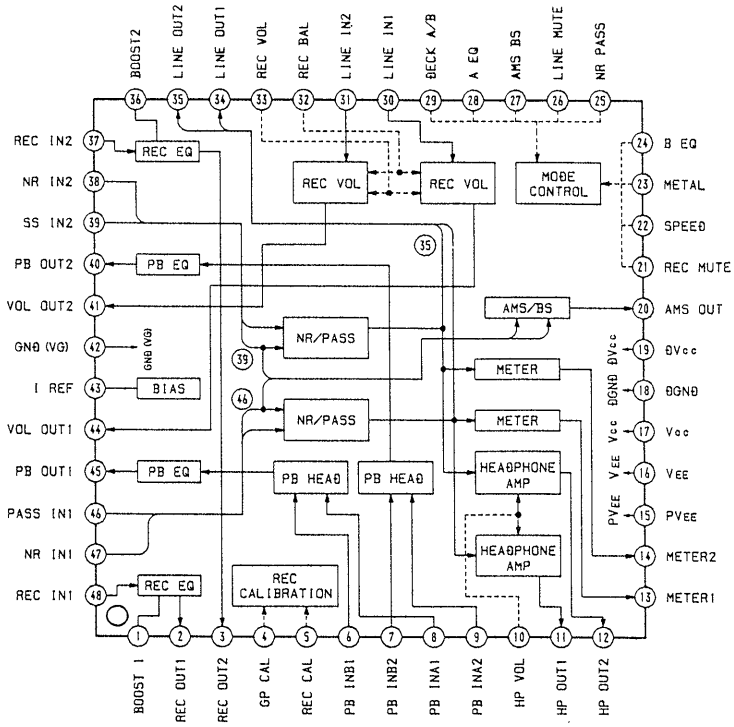
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ :internal component.
- :fusible resistor.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

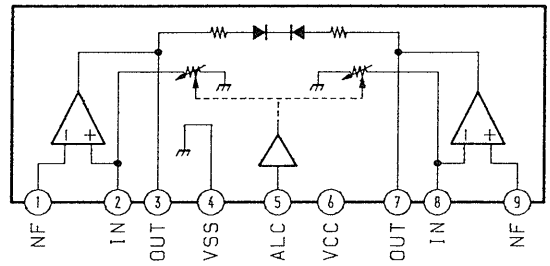
- B+ :B+ Line.
- B− :B− Line.
- :panel designation.
- :adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark: PLAY
  ( ): REC
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  :PB (DECK A)
  :PB (DECK B)
  :REC (DECK B)

5-7. IC BLOCK DIAGRAMS

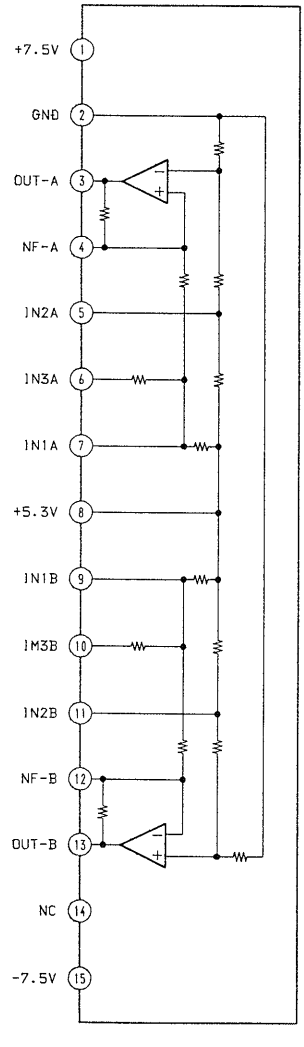
IC101 CXA1599Q



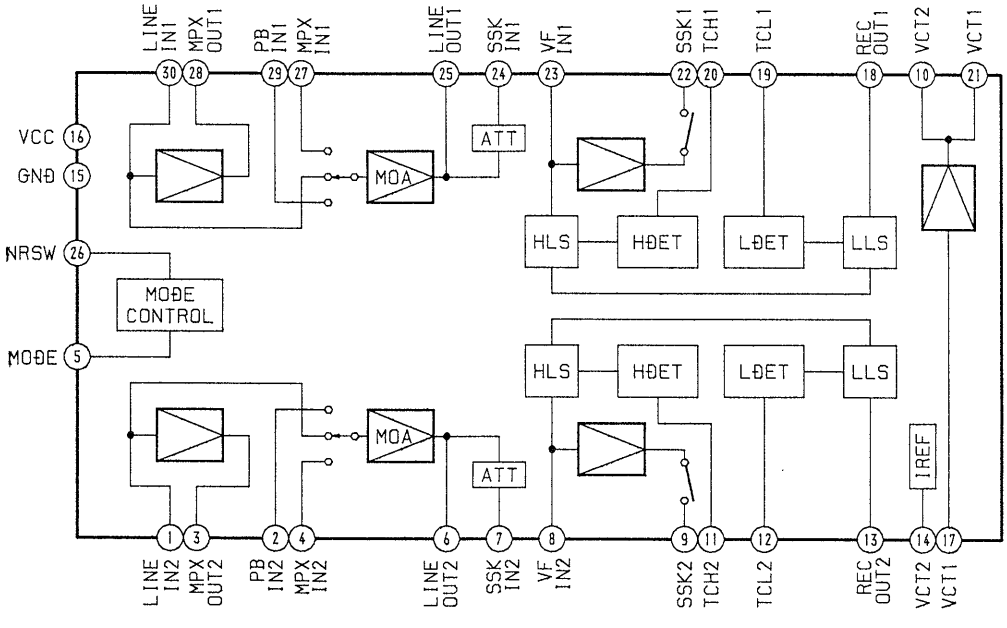
IC102 BA3308



IC603 TA8242AK



IC103 CXA1331S



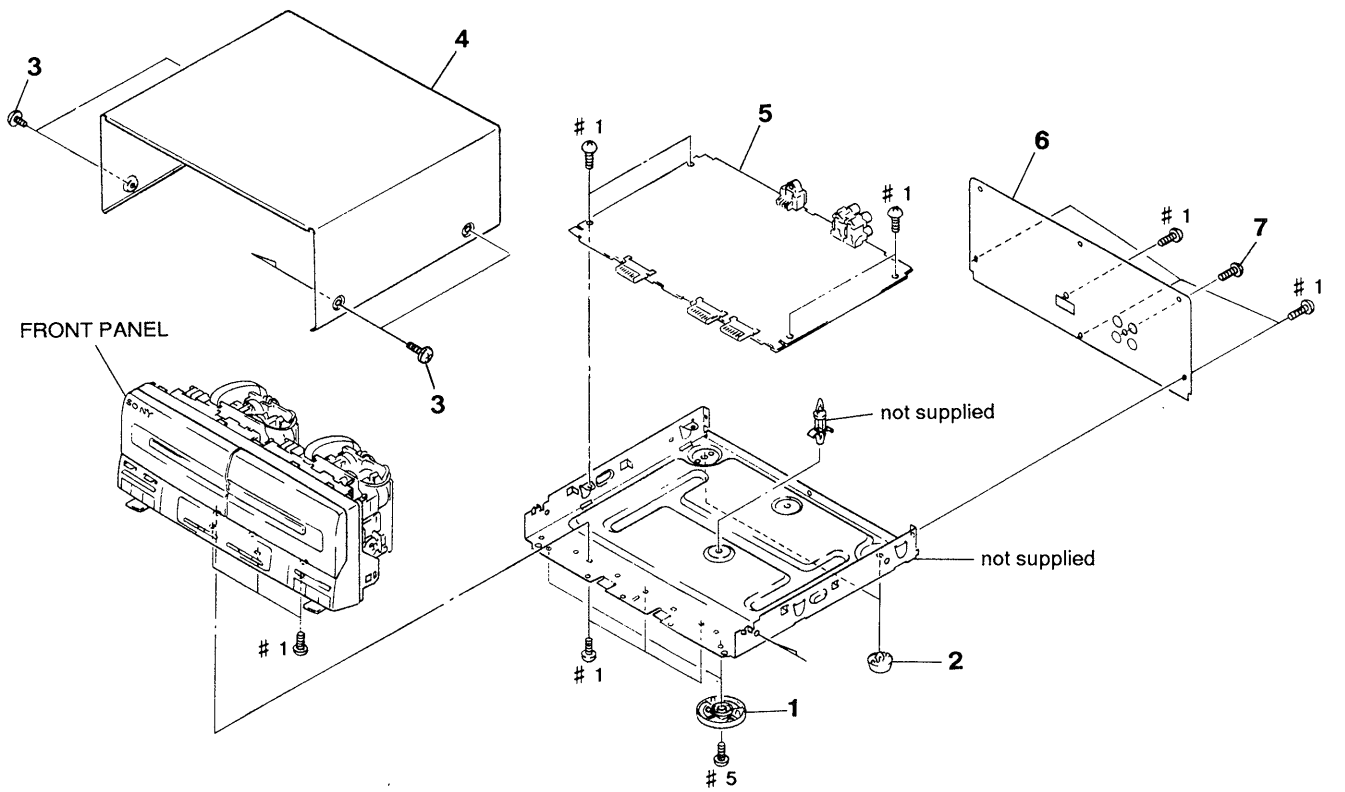
SECTION 6
EXPLODED VIEWS

NOTE:

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts color Cabinet's color
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation
  EA : Saudi Arabia model
  TH : Thailand model

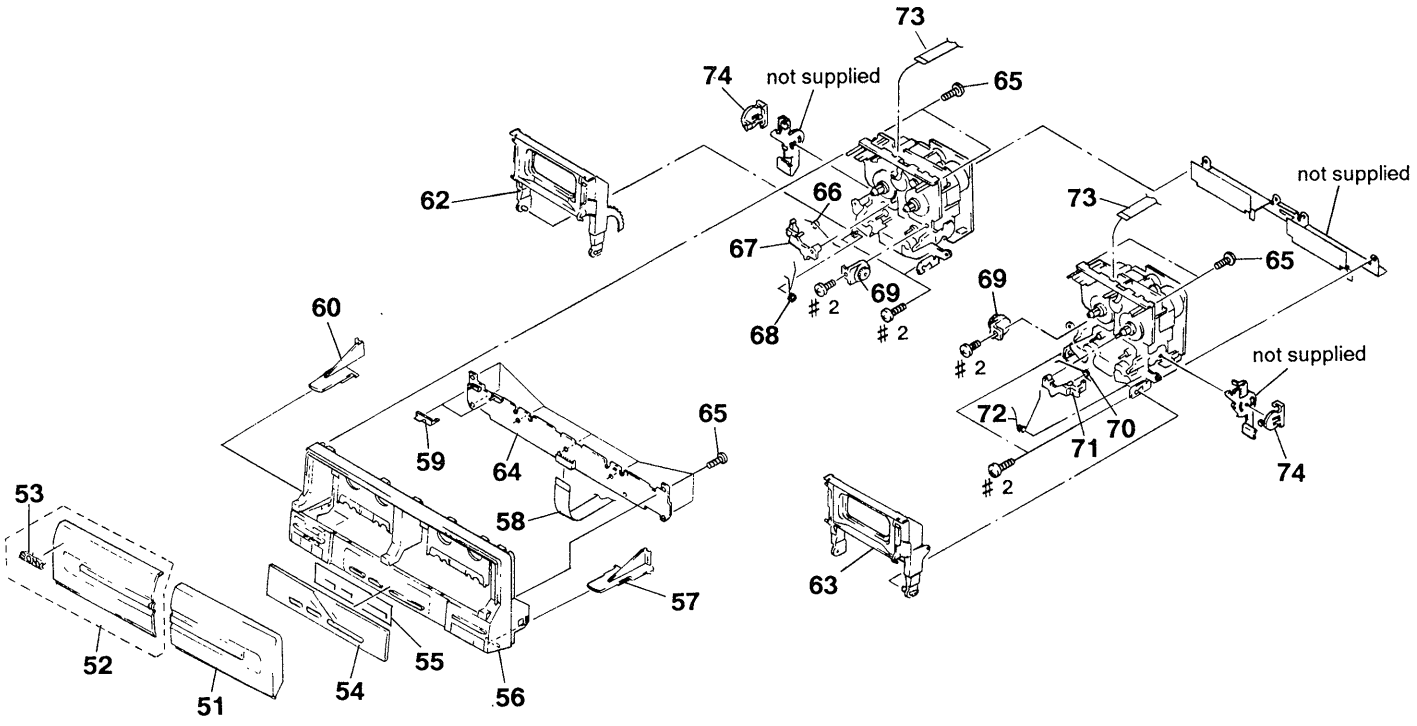
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

6-1. CHASSIS SECTION



Ref. No.	Part No.	Description	Remark
1	4-977-699-11	LEG (F)	
2	4-965-822-01	FOOT	
3	3-363-099-01	SCREW (CASE 3 TP2)	
* 4	4-978-245-51	CASE (SILVER)	
* 4	4-978-245-71	CASE (BLACK)	
* 5	A-2007-477-A	TC MAIN BOARD, COMPLETE	
* 6	4-978-260-01	PANEL, BACK (EX100:AEP, UK)	
* 6	4-978-260-11	PANEL, BACK (EX100:E)	
* 6	4-978-260-21	PANEL, BACK (EX100:EA)	
* 6	4-978-260-31	PANEL, BACK (EX100:TH)	
* 6	4-978-260-41	PANEL, BACK (EX90:AEP, UK)	
* 6	4-978-260-51	PANEL, BACK (EX90:E)	
* 6	4-978-260-61	PANEL, BACK (EX90:EA)	
* 6	4-978-260-71	PANEL, BACK (EX90:TH)	
7	3-704-515-01	SCREW (BV/RING)	

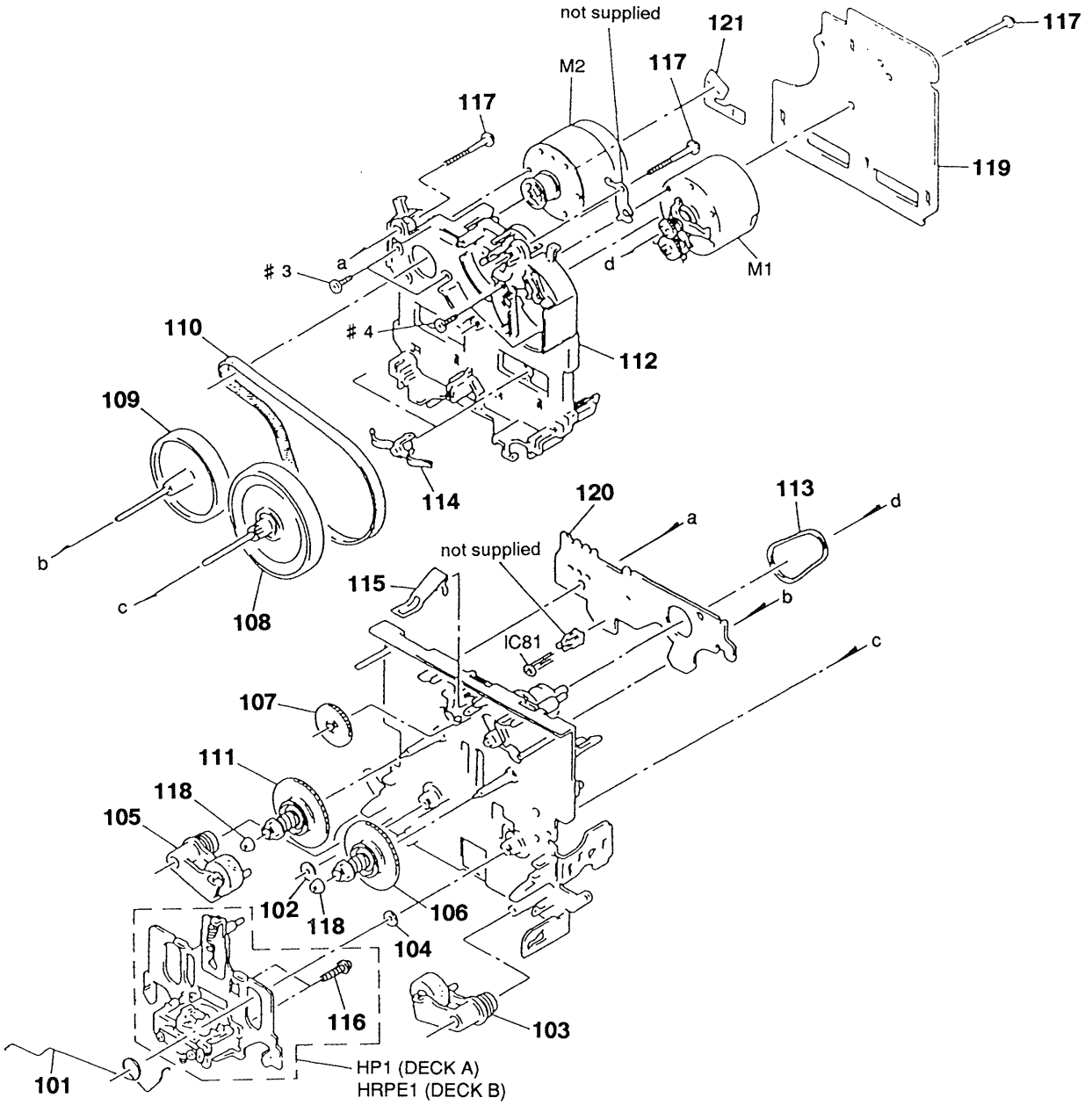
6-2. FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark
51	X-3371-674-1	LID (B) ASSY, CASSETTE (BLACK)	
51	X-4946-613-1	LID (B) ASSY, CASSETTE (SILVER)	
52	X-3371-673-1	LID (A) ASSY, CASSETTE (BLACK)	
52	X-4946-612-1	LID (A) ASSY, CASSETTE (SILVER)	
53	4-962-708-11	EMBLEM (4-A), SONY	
54	X-4947-183-1	WINDOW ASSY	
55	4-978-257-01	ILLUMINATOR	
56	X-3371-672-1	PANEL ASSY, FRONT (BLACK)	
56	X-4946-611-1	PANEL ASSY, FRONT (SILVER)	
57	4-978-255-01	LEVER (EJECT-B) (SILVER)	
57	4-978-255-11	LEVER (EJECT-B) (BLACK)	
58	1-769-390-11	WIRE (FLAT TYPE) (17 CORE)	
59	4-978-256-01	KNOB (SLIDE) (SILVER)	
59	4-978-256-11	KNOB (SLIDE) (BLACK)	
60	4-978-254-01	LEVER (EJECT-A) (SILVER)	
60	4-978-254-11	LEVER (EJECT-A) (BLACK)	

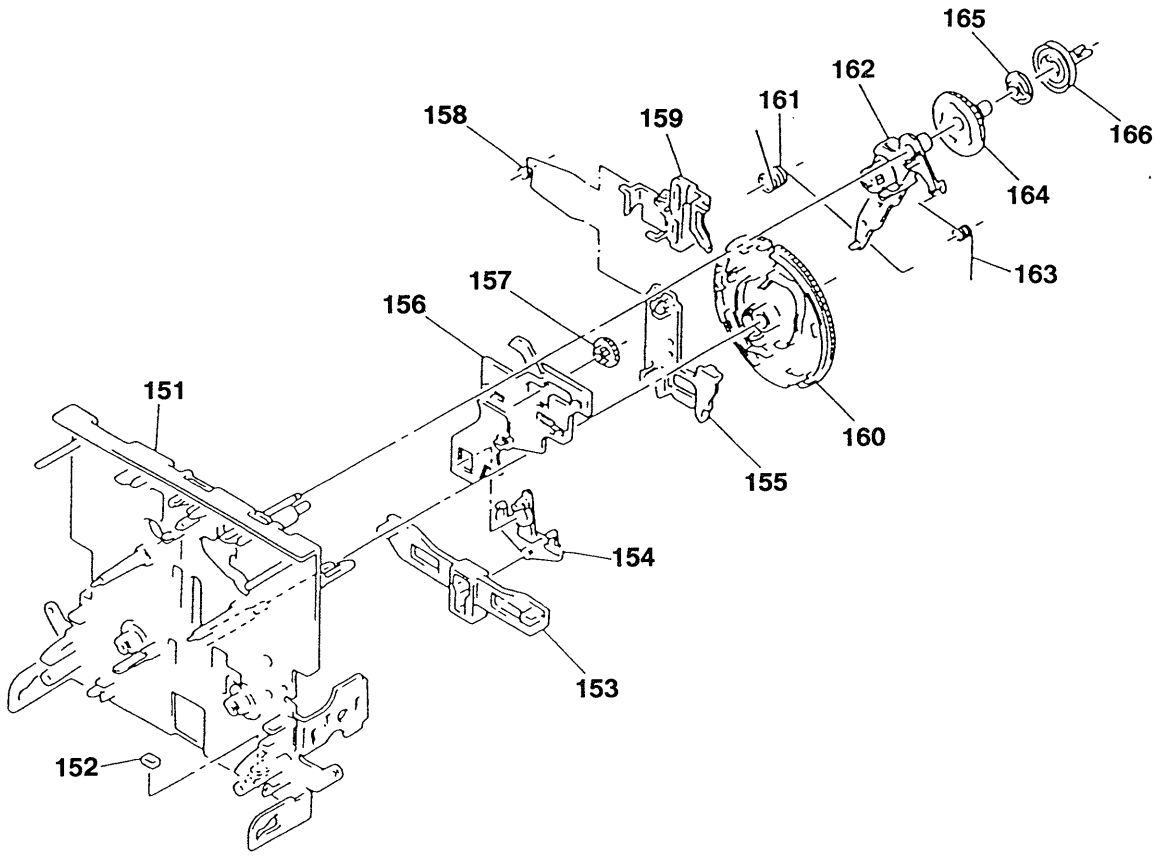
Ref. No.	Part No.	Description	Remark
62	X-3371-697-1	HOLDER (L) ASSY, CASSETTE (TH)	
62	X-3372-081-1	HOLDER (L) ASSY, CASSETTE (AEP, UK, E, EA)	
63	X-3371-698-1	HOLDER (R) ASSY, CASSETTE (TH)	
63	X-3372-082-1	HOLDER (R) ASSY, CASSETTE (AEP, UK, E, EA)	
* 64	A-2007-478-A	TC PANEL BOARD, COMPLETE	
65	4-951-620-01	SCREW (2.6X8), +BVTP	
66	3-354-961-01	SPRING (EJ SAFTY SPRING L)	
67	3-354-955-01	LEVER (EJ SAFTY LEVER L)	
68	4-959-231-11	SPRING (L), TORSION	
69	3-354-963-01	DAMPER	
70	3-354-962-01	SPRING (EJ SAFTY SPRING R)	
71	3-354-956-01	LEVER (EJ SAFTY LEVER R)	
72	4-959-232-11	SPRING (R), TORSION	
73	1-765-384-11	WIRE (FLAT TYPE) (7 CORE)	
74	3-354-957-01	JOINT (LOCK LEVER)	

6-3. MECHANISM SECTION-1
(DECK A: TCM-190RA12CL)
(DECK B: TCM-190RB52C)



Ref. No.	Part No.	Description	Remark
101	3-907-362-01	SPRING, TORSION	
102	3-356-714-01	WASHER	
103	X-3366-047-1	LEVER (PINCH F) ASSY	
104	3-356-713-01	WASHER	
105	X-3366-048-1	LEVER (PINCH R) ASSY	
106	X-3366-971-1	TABLE ASSY (B), REEL (DECK A)	
106	X-3369-508-1	TABLE (C) ASSY, REEL (DECK B)	
107	3-359-424-01	GEAR (REV GEAR)	
108	X-3367-629-1	FLYWHEEL (FWD) ASSY	
109	X-3359-410-1	FLYWHEEL (REV) ASSY (DECK A)	
109	X-3367-630-1	FLYWHEEL (REV) ASSY (DECK B)	
110	3-359-417-01	BELT (FLAT), CAPSTAN	
111	X-3366-970-1	TABLE ASSY, REEL	
112	3-359-436-11	BASE (THRUST RETAINER), FITTING	
113	3-359-466-01	BELT (FR), SQUARE	
114	3-575-321-00	RETAINER, THRUST, CAPSTAN	
115	3-359-430-01	SPRING (CASSETTE RETAINER), LEAF	
116	3-388-848-01	SCREW (P2X6) (B TIGHT)	
117	3-359-414-01	SCREW (+PTPWH 2X23)	
118	3-362-308-01	CAP (REEL)	
* 119	A-2007-266-A	AUDIO BOARD, COMPLETE (DECK A)	
* 119	A-2007-133-A	AUDIO BOARD, COMPLETE (DECK B)	
* 120	1-638-020-11	LEAF SW-A BOARD	
* 120	1-638-020-11	LEAF SW-B BOARD	
121	1-638-983-11	MOTOR FLEXIBLE BOARD	
HP1	A-2003-757-A	BASE ASSY, HEAD (PB)(DECK A)	
HRPE1	A-2003-930-A	BASE ASSY, HEAD (PB/REC/ERASE)(DECK A)	
IC81	8-749-924-10	IC PHONT REFLECTOR NJL5165K-B(HI)	
M1	X-3363-501-2	MOTOR ASSY (REEL)	
M2	X-3365-377-2	MOTOR ASSY (CAPSTAN)	

6-4. MECHANISM SECTION-2
(DECK A: TCM-190RA12CL / DECK B: TCM-190RB52C)



Ref. No.	Part No.	Description	Remark
151	X-3359-415-1	CHASSIS ASSY, MECHANICAL	
152	3-359-469-01	SPACER	
153	3-359-425-01	SLIDER (REVERSE SLIDER)	
154	3-359-426-01	LEVER (REVERSE LEVER)	
155	3-359-427-01	SLIDER (LEVERSE SLIDER)	
* 156	3-359-415-01	SLIDER (TRIGGER SLIDER) (DECK A)	
156	3-359-415-11	SLIDER (TRIGGER SLIDER) (DECK B)	
157	3-359-448-01	GEAR (TRIGGER)	
158	3-359-454-01	SPRING, TORSION	
159	3-359-429-01	SLIDER (BRAKE PLATE) (DECK A)	

Ref. No.	Part No.	Description	Remark
159	3-359-429-11	SLIDER (BRAKE PLATE) (DECK B)	
160	3-359-420-01	GEAR (CAM GEAR)	
161	3-359-456-01	SPRING (TRIGGER SPRING), TORSION	
162	X-3366-569-1	ARM ASSY, FR	
163	3-924-185-11	SPRING (FR ARM), TORSION	
164	3-359-419-11	GEAR (FR GEAR)	
165	3-359-421-01	CLUTCH (REEL DISK)	
166	3-359-418-01	PULLEY (FR PULLEY)	

AUDIO

SECTION 7
ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- SEMICONDUCTORS
  In each case, u: μ , for example:
  uA...: μA..., uPA...: μPA..., uPB...: μPB..., uPC...: μPC..., uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH

Ref. No.	Part No.	Description			Remark
*	A-2007-266-A	AUDIO BOARD, COMPLETE (DECK A)			
		**********			
		< CAPACITOR >			
C11	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C12	1-136-157-00	FILM	0.022uF	5%	50V
C13	1-124-234-00	ELECT	22uF	20%	16V
C18	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C21	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C22	1-136-157-00	FILM	0.022uF	5%	50V
C23	1-124-234-00	ELECT	22uF	20%	16V
C28	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C31	1-124-234-00	ELECT	22uF	20%	16V
C32	1-124-234-00	ELECT	22uF	20%	16V
C72	1-109-889-11	ELECT	1uF	20%	50V
		< CONNECTOR >			
* CNJ31	1-580-782-11	CONNECTOR, BOARD TO BOARD			
CNJ72	1-764-902-11	CONNECTOR, FFC/FPC 4P			
* CNP32	1-580-772-11	PIN, CONNECTOR (PC BOARD) 4P			
* CNP71	1-564-719-11	PIN, CONNECTOR (SMALL TYPE) 3P			
		< IC >			
IC31	8-759-106-02	IC uPC4570G2			
		< JUMPER RESISTOR >			
JW1	1-216-295-91	CONDUCTOR, CHIP	(2012)		
JW51	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW52	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW53	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW54	1-216-296-91	CONDUCTOR, CHIP	(3216)		
		< TRANSISTOR >			
Q71	8-729-216-22	TRANSISTOR 2SA1162-G			
		< RESISTOR >			
R11	1-216-099-00	METAL CHIP	120K	5%	1/10W
R12	1-216-025-91	METAL GLAZE	100	5%	1/10W
R13	1-216-100-00	METAL GLAZE	130K	5%	1/10W
R14	1-216-068-00	METAL CHIP	6.2K	5%	1/10W
R21	1-216-099-00	METAL CHIP	120K	5%	1/10W
R22	1-216-025-91	METAL GLAZE	100	5%	1/10W
R23	1-216-100-00	METAL GLAZE	130K	5%	1/10W
R24	1-216-068-00	METAL CHIP	6.2K	5%	1/10W
R31	1-216-033-00	METAL CHIP	220	5%	1/10W
R32	1-216-033-00	METAL CHIP	220	5%	1/10W
R71	1-216-082-00	METAL GLAZE	24K	5%	1/10W
R72	1-216-081-00	METAL CHIP	22K	5%	1/10W
R73	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R74	1-216-089-91	METAL GLAZE	47K	5%	1/10W
		< VARIABLE RESISTOR >			
RV11	1-241-761-11	RES, ADJ, CARBON 1K			
RV21	1-241-761-11	RES, ADJ, CARBON 1K			
RV71	1-241-630-11	RES, ADJ, CARBON 10K			
RV72	1-241-630-11	RES, ADJ, CARBON 10K			
**********					
*	A-2007-133-A	AUDIO BOARD, COMPLETE (DECK B)			
		**********			
		< CAPACITOR >			
C11	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C12	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C13	1-136-153-00	FILM	0.01uF	5%	50V
C14	1-126-177-11	ELECT	100uF	20%	10V
C15	1-124-234-00	ELECT	22uF	20%	16V
C16	1-136-434-11	FILM	120PF	5%	630V
C17	1-102-113-00	CERAMIC	390PF	10%	50V
C18	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C21	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C22	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C23	1-136-153-00	FILM	0.01uF	5%	50V
C24	1-126-177-11	ELECT	100uF	20%	10V
C25	1-124-234-00	ELECT	22uF	20%	16V
C26	1-136-434-11	FILM	120PF	5%	630V
C27	1-102-113-00	CERAMIC	390PF	10%	50V
C28	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C31	1-124-234-00	ELECT	22uF	20%	16V
C32	1-124-234-00	ELECT	22uF	20%	16V
C33	1-124-234-00	ELECT	22uF	20%	16V
C51	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C52	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C53	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C54	1-107-364-11	FILM	0.012uF	5%	100V

Ref.No.	Part No.	Description			Remark
C56	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C57	1-164-346-11	CERAMIC CHIP	1uF		16V
C58	1-163-020-00	CERAMIC CHIP	0.0082uF	10%	50V
C72	1-109-889-11	ELECT	1uF	20%	50V
		< CONNECTOR >			
* CNJ31	1-580-782-11	CONNECTOR, BOARD TO BOARD			
* CNJ33	1-580-782-11	CONNECTOR, BOARD TO BOARD			
CNJ72	1-764-902-11	CONNECTOR, FFC/FPC 4P			
* CNP32	1-580-781-11	PIN, CONNECTOR (PC BOARD) 7P			
* CNP71	1-564-719-11	PIN, CONNECTOR (SMALL TYPE) 3P			
		< IC >			
IC31	8-759-249-21	IC uPC1330AGR			
IC32	8-759-106-02	IC uPC4570G2			
		< JUMPER RESISTOR >			
JW1	1-216-295-91	CONDUCTOR, CHIP	(2012)		
JW2	1-216-295-91	CONDUCTOR, CHIP	(2012)		
JW11	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW12	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW13	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW14	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW15	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW16	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW17	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW18	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW19	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW20	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW21	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW22	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW23	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW24	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW25	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW26	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW27	1-216-296-91	CONDUCTOR, CHIP	(3216)		
		< COIL >			
L11	1-410-780-11	INDUCTOR	27mH		
L21	1-410-780-11	INDUCTOR	27mH		
		< TRANSISTOR >			
Q51	8-729-111-29	TRANSISTOR	2SD1616A-K		
Q52	8-729-111-29	TRANSISTOR	2SD1616A-K		
Q53	8-729-111-29	TRANSISTOR	2SD1616A-K		
Q71	8-729-216-22	TRANSISTOR	2SA1162-G		
		< RESISTOR >			
R11	1-216-099-00	METAL CHIP	120K	5%	1/10W
R12	1-216-033-00	METAL CHIP	220	5%	1/10W
R13	1-216-081-00	METAL CHIP	22K	5%	1/10W
R14	1-216-076-00	METAL CHIP	13K	5%	1/10W
R15	1-216-107-00	METAL CHIP	270K	5%	1/10W
R16	1-249-430-11	CARBON	12K	5%	1/4W
R21	1-216-099-00	METAL CHIP	120K	5%	1/10W
R22	1-216-033-00	METAL CHIP	220	5%	1/10W
R23	1-216-081-00	METAL CHIP	22K	5%	1/10W
R24	1-216-076-00	METAL CHIP	13K	5%	1/10W
R25	1-216-107-00	METAL CHIP	270K	5%	1/10W
R26	1-249-430-11	CARBON	12K	5%	1/4W
R31	1-216-033-00	METAL CHIP	220	5%	1/10W
R32	1-216-033-00	METAL CHIP	220	5%	1/10W
R33	1-216-073-00	METAL CHIP	10K	5%	1/10W
R41	1-249-393-11	CARBON	10	5%	1/4W
R42	1-249-393-11	CARBON	10	5%	1/4W
R51	1-216-091-00	METAL CHIP	56K	5%	1/10W
R52	1-216-091-00	METAL CHIP	56K	5%	1/10W
R53	1-216-073-00	METAL CHIP	10K	5%	1/10W
R54	1-216-309-00	METAL CHIP	5.6	5%	1/10W
R55	1-216-309-00	METAL CHIP	5.6	5%	1/10W
R56	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R71	1-216-082-00	METAL GLAZE	24K	5%	1/10W
R72	1-216-081-00	METAL CHIP	22K	5%	1/10W
R73	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R74	1-216-089-91	METAL GLAZE	47K	5%	1/10W
		< VARIABLE RESISTOR >			
RV11	1-241-761-11	RES, ADJ, CARBON 1K			
RV12	1-238-551-11	RES, ADJ, CARBON 220K			
RV21	1-241-761-11	RES, ADJ, CARBON 1K			
RV22	1-238-551-11	RES, ADJ, CARBON 220K			
RV71	1-241-630-11	RES, ADJ, CARBON 10K			
RV72	1-241-630-11	RES, ADJ, CARBON 10K			
		< TRANSFORMER >			
T51	1-429-290-11	TRANSFORMER, BIAS OSCILLATION			
**********					
*	1-638-020-11	LEAF SW-A BOARD			
		**********			
		< CONNECTOR >			
* CNP81	1-568-850-11	SOCKET, CONNECTER 7P			
		< IC >			
IC81	8-749-924-10	IC PHONT REFLECTOR NJL5165K-B(H1)			

LEAF SW-A | LEAF SW-B | TC MAIN

Ref.No.	Part No.	Description			Remark
		< RESISTOR >			
R84	1-249-417-11	CARBON	1K	5% 1/4W	
R85	1-249-408-11	CARBON	180	5% 1/4W	
		< SWITCH >			
S81	1-571-958-11	SWITCH, PUSH (1 KEY)		(STOP DET)	
S82	1-571-281-21	SWITCH, LEAF		(CrO2 DET)	
S86	1-571-281-21	SWITCH, LEAF		(HALF DET)	
**********					
*	1-638-020-11	LEAF SW-B BOARD			
		**********			
		< CONNECTOR >			
* CNP81	1-568-850-11	SOCKET, CONNECTOR 7P			
		< IC >			
IC81	8-749-924-10	IC PHONT REFLECTOR NJL5165K-B(H1)			
		< RESISTOR >			
R81	1-249-414-11	CARBON	560	5% 1/4W	
R82	1-247-818-11	CARBON	300	5% 1/4W	
R83	1-247-834-11	CARBON	1.3K	5% 1/4W	
R84	1-249-417-11	CARBON	1K	5% 1/4W	
R85	1-249-408-11	CARBON	180	5% 1/4W	
		< SWITCH >			
S81	1-571-958-11	SWITCH, PUSH (1 KEY)		(STOP DET)	
S82	1-571-281-21	SWITCH, LEAF		(CrO2 DET)	
S83	1-571-281-21	SWITCH, LEAF		(METAL DET)	
S84	1-571-281-21	SWITCH, LEAF		(ERASE PROOF (A))	
S85	1-571-281-21	SWITCH, LEAF		(ERASE PROOF (B))	
S86	1-571-281-21	SWITCH, LEAF		(HALF DET)	
**********					
*	A-2007-477-A	TC MAIN BOARD, COMPLETE			
		**********			
	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S			
		< CAPACITOR >			
C102	1-162-294-31	CERAMIC	0.001uF	10% 50V	
C103	1-162-282-31	CERAMIC	100PF	10% 50V	
C104	1-130-475-00	MYLAR	0.0022uF	5% 50V	
C105	1-130-475-00	MYLAR	0.0022uF	5% 50V	
C106	1-126-961-11	ELECT	2.2uF	20% 50V	
C107	1-136-174-00	FILM	0.56uF	5% 50V	
C108	1-136-171-00	FILM	0.33uF	5% 50V	
C109	1-126-961-11	ELECT	2.2uF	20% 50V	
C110	1-126-961-11	ELECT	2.2uF	20% 50V	
C111	1-162-282-31	CERAMIC	100PF	10% 50V	
C114	1-124-907-11	ELECT	10uF	20% 50V	
C115	1-124-443-00	ELECT	100uF	20% 10V	
C116	1-162-282-31	CERAMIC	100PF	10% 50V	
C119	1-124-902-00	ELECT	0.47uF	20% 50V	
C120	1-126-963-11	ELECT	4.7uF	20% 50V	
C130	1-162-282-31	CERAMIC	100PF	10% 50V	
C131	1-162-282-31	CERAMIC	100PF	10% 50V	
C132	1-124-903-11	ELECT	1uF	20% 50V	
C133	1-162-286-31	CERAMIC	220PF	10% 50V	
C202	1-162-294-31	CERAMIC	0.001uF	10% 50V	
C203	1-162-282-31	CERAMIC	100PF	10% 50V	
C204	1-130-475-00	MYLAR	0.0022uF	5% 50V	
C205	1-130-475-00	MYLAR	0.0022uF	5% 50V	
C206	1-126-961-11	ELECT	2.2uF	20% 50V	
C207	1-136-174-00	FILM	0.56uF	5% 50V	
C208	1-136-171-00	FILM	0.33uF	5% 50V	
C209	1-126-961-11	ELECT	2.2uF	20% 50V	
C210	1-126-961-11	ELECT	2.2uF	20% 50V	
C211	1-162-282-31	CERAMIC	100PF	10% 50V	
C214	1-124-907-11	ELECT	10uF	20% 50V	
C215	1-124-443-00	ELECT	100uF	20% 10V	
C216	1-162-282-31	CERAMIC	100PF	10% 50V	
C219	1-124-902-00	ELECT	0.47uF	20% 50V	
C220	1-126-963-11	ELECT	4.7uF	20% 50V	
C230	1-162-282-31	CERAMIC	100PF	10% 50V	
C231	1-162-282-31	CERAMIC	100PF	10% 50V	
C232	1-124-903-11	ELECT	1uF	20% 50V	
C233	1-162-286-31	CERAMIC	220PF	10% 50V	
C502	1-126-944-11	ELECT	3300uF	20% 16V	
C504	1-126-944-11	ELECT	3300uF	20% 16V	
C518	1-124-907-11	ELECT	10uF	20% 50V	
C519	1-124-907-11	ELECT	10uF	20% 50V	
C529	1-136-157-00	FILM	0.022uF	5% 50V	
C530	1-136-157-00	FILM	0.022uF	5% 50V	
C533	1-136-157-00	FILM	0.022uF	5% 50V	
C534	1-136-157-00	FILM	0.022uF	5% 50V	
C535	1-126-942-61	ELECT	1000uF	20% 16V	
C536	1-126-942-61	ELECT	1000uF	20% 16V	
C537	1-124-472-11	ELECT	470uF	20% 10V	
C538	1-124-472-11	ELECT	470uF	20% 10V	
C540	1-126-926-11	ELECT	1000uF	20% 10V	
C601	1-124-443-00	ELECT	100uF	20% 10V	
C602	1-164-159-11	CERAMIC	0.1uF	50V	
C603	1-162-282-31	CERAMIC	100PF	10% 50V	
C604	1-164-159-11	CERAMIC	0.1uF	50V	
C606	1-124-480-11	ELECT	470uF	20% 25V	
C607	1-124-480-11	ELECT	470uF	20% 25V	
C608	1-124-480-11	ELECT	470uF	20% 25V	

Ref.No.	Part No.	Description			Remark
C609	1-124-902-00	ELECT	0.47uF	20%	50V
C610	1-124-472-11	ELECT	470uF	20%	10V
C611	1-162-290-31	CERAMIC	470PF	10%	50V
C612	1-124-472-11	ELECT	470uF	20%	10V
C613	1-162-290-31	CERAMIC	470PF	10%	50V
C614	1-164-159-11	CERAMIC	0.1uF		50V
C615	1-164-159-11	CERAMIC	0.1uF		50V
C616	1-124-910-11	ELECT	47uF	20%	50V
C617	1-164-159-11	CERAMIC	0.1uF		50V
C620	1-124-907-11	ELECT	10uF	20%	50V
C621	1-124-907-11	ELECT	10uF	20%	50V
C622	1-124-477-11	ELECT	47uF	20%	25V
C623	1-124-477-11	ELECT	47uF	20%	25V
C630	1-126-963-11	ELECT	4.7uF	20%	50V
C631	1-124-903-11	ELECT	1uF	20%	50V
C636	1-126-965-11	ELECT	22uF	20%	50V
C641	1-126-963-11	ELECT	4.7uF	20%	50V
C642	1-124-902-00	ELECT	0.47uF	20%	50V
C645	1-124-907-11	ELECT	10uF	20%	50V
C646	1-126-961-11	ELECT	2.2uF	20%	50V
C649	1-124-907-11	ELECT	10uF	20%	50V
C650	1-126-965-11	ELECT	22uF	20%	50V
C651	1-124-443-00	ELECT	100uF	20%	10V
C800	1-162-286-31	CERAMIC	220PF	10%	50V
C6035	1-162-294-31	CERAMIC	0.001uF	10%	50V

< CONNECTOR >

CN601	1-695-330-31	PIN, CONNECTOR (PC BOARD) 7P	
* CN602	1-691-916-11	CONNECTOR, BOARD TO BOARD	
CN603	1-695-330-31	PIN, CONNECTOR (PC BOARD) 7P	
* CN604	1-691-916-11	CONNECTOR, BOARD TO BOARD	
* CN605	1-691-916-11	CONNECTOR, BOARD TO BOARD	
CN608	1-770-166-11	CONNECTOR, FFC/FPC 17P	
CN609	1-770-158-21	HOUSING, CONNECTOR 7P (SYSTEM CONTROL)	

< DIODE >

D508	8-719-024-99	DIODE	11ES2-NTA2B
D509	8-719-024-99	DIODE	11ES2-NTA2B
D510	8-719-024-99	DIODE	11ES2-NTA2B
D511	8-719-024-99	DIODE	11ES2-NTA2B
D512	8-719-024-99	DIODE	11ES2-NTA2B
D513	8-719-024-99	DIODE	11ES2-NTA2B
D519	8-719-024-99	DIODE	11ES2-NTA2B
D522	8-719-024-99	DIODE	11ES2-NTA2B
D523	8-719-987-63	DIODE	1N4148M
D524	8-719-987-63	DIODE	1N4148M
D525	8-719-024-99	DIODE	11ES2-NTA2B
D526	8-719-024-99	DIODE	11ES2-NTA2B
D601	8-719-987-63	DIODE	1N4148M
D602	8-719-987-63	DIODE	1N4148M
D603	8-719-987-63	DIODE	1N4148M
D604	8-719-987-63	DIODE	1N4148M
D605	8-719-024-99	DIODE	11ES2-NTA2B
D606	8-719-024-99	DIODE	11ES2-NTA2B
D607	8-719-987-63	DIODE	1N4148M
D608	8-719-987-63	DIODE	1N4148M
D610	8-719-024-99	DIODE	11ES2-NTA2B
D611	8-719-987-63	DIODE	1N4148M
D620	8-719-012-68	DIODE	UZ-2.7BSA-TP

< IC >

IC101	8-752-058-57	IC	CXA1599Q
IC102	8-759-939-73	IC	BA3308
IC103	8-752-059-55	IC	CXA1331S
IC104	8-759-337-73	IC	M38123M4-118FP
IC502	8-759-231-53	IC	TA7805S
IC503	8-759-604-86	IC	M5F7807L
IC504	8-759-604-90	IC	M5F7907L
IC505	8-759-604-86	IC	M5F7807L
IC506	8-759-604-90	IC	M5F7907L
IC602	8-759-256-72	IC	PST994D
IC603	8-759-266-35	IC	TA8242AK
IC6004	8-759-000-48	IC	MC14052BCP

< COIL >

L601	1-414-189-31	INDUCTOR	100uH
L6002	1-414-183-41	INDUCTOR	10uH

< JACK >

PJ101	1-695-188-31	JACK, PIN 4P (TAPE IN/OUT)

< TRANSISTOR >

Q101	8-729-119-78	TRANSISTOR	2SC2785-HFE
Q122	8-729-900-89	TRANSISTOR	DTC144ES
Q201	8-729-119-78	TRANSISTOR	2SC2785-HFE
Q222	8-729-900-89	TRANSISTOR	DTC144ES
Q603	8-729-801-93	TRANSISTOR	2SD1387
Q604	8-729-801-93	TRANSISTOR	2SD1387
Q605	8-729-900-80	TRANSISTOR	DTC114ES
Q607	8-729-900-89	TRANSISTOR	DTC144ES
Q608	8-729-900-89	TRANSISTOR	DTC144ES
Q609	8-729-900-89	TRANSISTOR	DTC144ES
Q611	8-729-119-78	TRANSISTOR	2SC2785-HFE
Q612	8-729-119-76	TRANSISTOR	2SA1175-HFE
Q613	8-729-900-65	TRANSISTOR	DTA144ES
Q614	8-729-900-89	TRANSISTOR	DTC144ES
Q620	8-729-900-89	TRANSISTOR	DTC144ES
Q621	8-729-900-65	TRANSISTOR	DTA144ES
Q627	8-729-900-89	TRANSISTOR	DTC144ES

Ref. No.	Part No.	Description				Remark
Q630	8-729-422-57	TRANSISTOR	UN4111			
Q802	8-729-900-80	TRANSISTOR	DTC114ES			
Q803	8-729-900-80	TRANSISTOR	DTC114ES			
Q804	8-729-900-80	TRANSISTOR	DTC114ES			
Q805	8-729-900-80	TRANSISTOR	DTC114ES			
		< RESISTOR >				
R106	1-249-418-11	CARBON	1.2K	5%	1/4W	
R107	1-247-864-11	CARBON	24K	5%	1/4W	
R108	1-249-414-11	CARBON	560	5%	1/4W	
R109	1-249-429-11	CARBON	10K	5%	1/4W	
R110	1-249-427-11	CARBON	6.8K	5%	1/4W	
R111	1-249-427-11	CARBON	6.8K	5%	1/4W	
R112	1-247-832-11	CARBON	1.1K	5%	1/4W	
R113	1-249-429-11	CARBON	10K	5%	1/4W	
R114	1-249-421-11	CARBON	2.2K	5%	1/4W	
R115	1-247-887-00	CARBON	220K	5%	1/4W	
R116	1-249-437-11	CARBON	47K	5%	1/4W	
R117	1-249-419-11	CARBON	1.5K	5%	1/4W	
R118	1-249-438-11	CARBON	56K	5%	1/4W	
R119	1-247-834-11	CARBON	1.3K	5%	1/4W	
R120	1-247-807-31	CARBON	100	5%	1/4W	
R121	1-247-807-31	CARBON	100	5%	1/4W	
R122	1-249-426-11	CARBON	5.6K	5%	1/4W	
R206	1-249-418-11	CARBON	1.2K	5%	1/4W	
R207	1-247-864-11	CARBON	24K	5%	1/4W	
R208	1-249-414-11	CARBON	560	5%	1/4W	
R209	1-249-429-11	CARBON	10K	5%	1/4W	
R210	1-249-427-11	CARBON	6.8K	5%	1/4W	
R211	1-249-427-11	CARBON	6.8K	5%	1/4W	
R212	1-247-832-11	CARBON	1.1K	5%	1/4W	
R213	1-249-429-11	CARBON	10K	5%	1/4W	
R214	1-249-421-11	CARBON	2.2K	5%	1/4W	
R215	1-247-887-00	CARBON	220K	5%	1/4W	
R216	1-249-437-11	CARBON	47K	5%	1/4W	
R217	1-249-419-11	CARBON	1.5K	5%	1/4W	
R218	1-249-438-11	CARBON	56K	5%	1/4W	
R219	1-247-834-11	CARBON	1.3K	5%	1/4W	
R220	1-247-807-31	CARBON	100	5%	1/4W	
R221	1-247-807-31	CARBON	100	5%	1/4W	
R222	1-249-426-11	CARBON	5.6K	5%	1/4W	
R504	1-247-807-31	CARBON	100	5%	1/4W	
R505	1-249-429-11	CARBON	10K	5%	1/4W	
R601	1-247-807-31	CARBON	100	5%	1/4W	
R602	1-247-807-31	CARBON	100	5%	1/4W	
R606	1-249-435-11	CARBON	33K	5%	1/4W	
R607	1-247-807-31	CARBON	100	5%	1/4W	
R615	1-247-807-31	CARBON	100	5%	1/4W	
R616	1-249-433-11	CARBON	22K	5%	1/4W	
R620	1-249-429-11	CARBON	10K	5%	1/4W	

Ref. No.	Part No.	Description				Remark
⚠R621	1-212-853-00	FUSIBLE	6.8	5%	1/4W	F
R622	1-249-421-11	CARBON	2.2K	5%	1/4W	
R623	1-249-421-11	CARBON	2.2K	5%	1/4W	
R624	1-249-434-11	CARBON	27K	5%	1/4W	
R625	1-249-421-11	CARBON	2.2K	5%	1/4W	
R626	1-249-421-11	CARBON	2.2K	5%	1/4W	
R627	1-249-421-11	CARBON	2.2K	5%	1/4W	
R628	1-249-434-11	CARBON	27K	5%	1/4W	
R629	1-249-421-11	CARBON	2.2K	5%	1/4W	
R630	1-249-429-11	CARBON	10K	5%	1/4W	
R631	1-249-421-11	CARBON	2.2K	5%	1/4W	
R632	1-249-429-11	CARBON	10K	5%	1/4W	
R633	1-247-807-31	CARBON	100	5%	1/4W	
R634	1-247-807-31	CARBON	100	5%	1/4W	
R637	1-249-414-11	CARBON	560	5%	1/4W	
R640	1-249-429-11	CARBON	10K	5%	1/4W	
R641	1-247-807-31	CARBON	100	5%	1/4W	
R642	1-249-424-11	CARBON	3.9K	5%	1/4W	
R648	1-249-437-11	CARBON	47K	5%	1/4W	
R649	1-249-437-11	CARBON	47K	5%	1/4W	
R650	1-249-437-11	CARBON	47K	5%	1/4W	
R656	1-249-393-11	CARBON	10	5%	1/4W	
R660	1-249-417-11	CARBON	1K	5%	1/4W	
R661	1-249-434-11	CARBON	27K	5%	1/4W	
R670	1-249-433-11	CARBON	22K	5%	1/4W	
R673	1-249-429-11	CARBON	10K	5%	1/4W	
R674	1-247-860-11	CARBON	16K	5%	1/4W	
R675	1-249-429-11	CARBON	10K	5%	1/4W	
R676	1-249-434-11	CARBON	27K	5%	1/4W	
R677	1-247-807-31	CARBON	100	5%	1/4W	
R678	1-247-807-31	CARBON	100	5%	1/4W	
R679	1-247-807-31	CARBON	100	5%	1/4W	
R680	1-249-433-11	CARBON	22K	5%	1/4W	
R681	1-249-429-11	CARBON	10K	5%	1/4W	
R682	1-249-429-11	CARBON	10K	5%	1/4W	
R683	1-249-429-11	CARBON	10K	5%	1/4W	
R684	1-249-413-11	CARBON	470	5%	1/4W	
R685	1-249-429-11	CARBON	10K	5%	1/4W	
R686	1-249-429-11	CARBON	10K	5%	1/4W	
R687	1-249-417-11	CARBON	1K	5%	1/4W	
R689	1-247-872-11	CARBON	51K	5%	1/4W	
R690	1-249-429-11	CARBON	10K	5%	1/4W	
R691	1-249-429-11	CARBON	10K	5%	1/4W	
R693	1-249-433-11	CARBON	22K	5%	1/4W	
R694	1-249-433-11	CARBON	22K	5%	1/4W	
R695	1-249-421-11	CARBON	2.2K	5%	1/4W	
R696	1-249-421-11	CARBON	2.2K	5%	1/4W	
R700	1-247-903-00	CARBON	1M	5%	1/4W	
R701	1-249-429-11	CARBON	10K	5%	1/4W	
R702	1-249-437-11	CARBON	47K	5%	1/4W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description				Remark
R801	1-249-429-11	CARBON	10K	5%	1/4W	
R802	1-247-807-31	CARBON	100	5%	1/4W	
R803	1-247-807-31	CARBON	100	5%	1/4W	
R804	1-247-807-31	CARBON	100	5%	1/4W	
R805	1-247-807-31	CARBON	100	5%	1/4W	
R807	1-249-433-11	CARBON	22K	5%	1/4W	
R808	1-249-429-11	CARBON	10K	5%	1/4W	
R809	1-249-429-11	CARBON	10K	5%	1/4W	
R810	1-249-429-11	CARBON	10K	5%	1/4W	
R813	1-249-411-11	CARBON	330	5%	1/4W	
R814	1-249-411-11	CARBON	330	5%	1/4W	
R815	1-249-411-11	CARBON	330	5%	1/4W	
R816	1-249-411-11	CARBON	330	5%	1/4W	
R817	1-249-411-11	CARBON	330	5%	1/4W	
R818	1-249-435-11	CARBON	33K	5%	1/4W	
R819	1-249-393-11	CARBON	10	5%	1/4W	
R820	1-249-417-11	CARBON	1K	5%	1/4W	
R821	1-249-417-11	CARBON	1K	5%	1/4W	
R822	1-249-417-11	CARBON	1K	5%	1/4W	
R823	1-249-425-11	CARBON	4.7K	5%	1/4W	
R6070	1-249-421-11	CARBON	2.2K	5%	1/4W	
R6071	1-249-421-11	CARBON	2.2K	5%	1/4W	
		< VARIABLE RESISTOR >				
RV101	1-238-600-11	RES, ADJ, CARBON 10K				
RV201	1-238-600-11	RES, ADJ, CARBON 10K				
		< VIBRATOR >				
X601	1-577-358-21	VIBRATOR, CERAMIC (4MHz)				

****

* A-2007-478-A TC PANEL BOARD, COMPLETE

****

< CONNECTOR >

CN900	1-770-169-11	CONNECTOR, FFC/FPC 17P	

< DIODE >

D900	8-719-046-43	DIODE	SEL5421E-TP15 (▷ DECK A)
D901	8-719-046-43	DIODE	SEL5421E-TP15 (◁ DECK A)
D902	8-719-046-43	DIODE	SEL5421E-TP15 (▷ DECK B)
D903	8-719-046-43	DIODE	SEL5421E-TP15 (◁ DECK B)
D906	8-719-046-44	DIODE	SEL5221S (CD SYNC)
D907	8-719-046-44	DIODE	SEL5221S (HIGH)
D908	8-719-046-44	DIODE	SEL5221S (NORMAL)
D909	8-719-046-36	DIODE	SEL5921A-TP15 (▮▮)
D910	8-719-046-44	DIODE	SEL5221S (REC)

Ref. No.	Part No.	Description				Remark
		< RESISTOR >				
R900	1-249-418-11	CARBON	1.2K	5%	1/4W	
R901	1-249-420-11	CARBON	1.8K	5%	1/4W	
R902	1-249-422-11	CARBON	2.7K	5%	1/4W	
R903	1-249-424-11	CARBON	3.9K	5%	1/4W	
R904	1-249-427-11	CARBON	6.8K	5%	1/4W	
R905	1-249-418-11	CARBON	1.2K	5%	1/4W	
R906	1-249-420-11	CARBON	1.8K	5%	1/4W	
R907	1-249-422-11	CARBON	2.7K	5%	1/4W	
R908	1-249-424-11	CARBON	3.9K	5%	1/4W	
R909	1-249-427-11	CARBON	6.8K	5%	1/4W	
R910	1-249-431-11	CARBON	15K	5%	1/4W	
R911	1-249-437-11	CARBON	47K	5%	1/4W	
R914	1-249-426-11	CARBON	5.6K	5%	1/4W	
R915	1-249-434-11	CARBON	27K	5%	1/4W	
R916	1-249-425-11	CARBON	4.7K	5%	1/4W	
		< SWITCH >				
S900	1-762-205-11	SWITCH, SLIDE (DIRECTION MODE)				
S901	1-762-205-11	SWITCH, SLIDE (DOLBY NR)				
S902	1-554-303-21	SWITCH, TACTILE (■ DECK B)				
S903	1-554-303-21	SWITCH, TACTILE (▷ DECK B)				
S904	1-554-303-21	SWITCH, TACTILE (◁ DECK B)				
S905	1-554-303-21	SWITCH, TACTILE (▮▮ PAUSE, DECK B)				
S906	1-554-303-21	SWITCH, TACTILE (◀◀ DECK A)				
S907	1-554-303-21	SWITCH, TACTILE (▶▶ DECK A)				
S908	1-554-303-21	SWITCH, TACTILE (■ DECK A)				
S909	1-554-303-21	SWITCH, TACTILE (▷ DECK A)				
S910	1-554-303-21	SWITCH, TACTILE (◁ DECK A)				
S911	1-554-303-21	SWITCH, TACTILE (◀◀ DECK B)				
S912	1-554-303-21	SWITCH, TACTILE (▶▶ DECK B)				
S913	1-554-303-21	SWITCH, TACTILE (● REC)				
S915	1-554-303-21	SWITCH, TACTILE (DUBBING MODE)				
S916	1-554-303-21	SWITCH, TACTILE (CD SYNC)				
S917	1-554-303-21	SWITCH, TACTILE (◉ REC MUTE)				

****

MISCELLANEOUS

****

58	1-769-390-11	WIRE (FLAT TYPE) (17 CORE)
73	1-765-384-11	WIRE (FLAT TYPE) (7 CORE)
HP1	A-2003-757-A	BASE ASSY, HEAD (PB) (DECK A)
HRPE1	A-2003-930-A	BASE ASSY, HEAD (PB/REC/ERASE) (DECK A)
IC81	8-749-924-10	IC PHONT REFLECTOR NJL5165K-B(HI)
M1	X-3363-501-2	MOTOR ASSY (REEL)
M2	X-3365-377-2	MOTOR ASSY (CAPSTAN)

****

Ref. No.	Part No.	Description	Remark
		ACCESSORIES & PACKING MATERIALS	
		**********	
*	3-933-134-01	CUSHION (LOWER)	
*	3-933-164-01	CUSHION (UPPER)	
		**********	
		**********	
		HARDWARE LIST	
		**********	
#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#2	7-621-770-67	SCREW +BVTT 2.6X6 (S)	
#3	7-621-775-00	SCREW +B 2.6X3	
#4	7-627-556-08	SCREW +P 2.6X2.8	
#5	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	

9-960-500-11

Sony Corporation
Consumer A&V Products Company
Home A&V Products Div.

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Quality Engineering Dept.

SA-EX100/S900

SERVICE MANUAL

Photo : SA-S900 model (US model)

US Model
Canadian Model
Tourist Model
SA-S900
AEP Model
UK Model
Australian Model
SA-EX100
E Model
SA-EX100/S900

SA-EX100 is the ACTIVE SPEAKER SYSTEM section in MHC-EX10AV.
SA-S900 is the ACTIVE SPEAKER SYSTEM section in MHC-C9EX.

(Woofer)
With 6 ohm loads driven, from 40 – 3,000 Hz; rated 50 watts minimum RMS power, with no more than 0.9% total harmonic distortion from 250 milliwatts to rated output.

(Tweeter)
With 50 ohm loads driven, from 3,000 – 20,000 Hz; rated 8 watts minimum RMS power, with no more than 0.9% total harmonic distoration from 250 milliwatts to rated output.

SPECIFICATIONS

Speaker system	Active speaker, 2-way, bass-reflex type
Speaker units	
Woofer:	15 cm dia., cone type
Tweeter:	2.5 x 10 cm, electrostatic type
Continuous RMS power output	
Woofer:	50 W + 50 W (6 ohms at 40 – 3,000 Hz, 0.9% THD)
	65 W + 65 W (6 ohms at 1 KHz, 5% THD)
Tweeter:	8 W + 8 W (50 ohms at 3,000 – 20,000 Hz, 0.9% THD)
	10 W + 10 W (50 ohms at 10 kHz, 5% THD)
Power consumpiton	60 W
Dimensions	Approx. 220 x 455 x 350 mm (w/h/d) (8 3/4 x 18 x 13 7/8 inches)
Mass	Approx. 8.2 kg (18 lb 1 oz) net per speaker

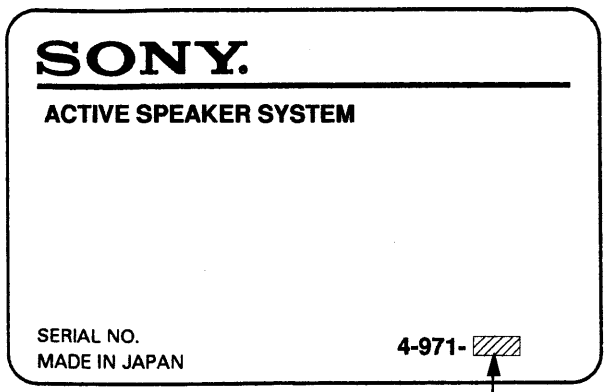
Power requirements

120 V AC, 60 Hz (US, Canadian model)
220 – 230 V AC 50/60 Hz (AEP, UK model)
110 – 120, 220 – 240 V AC adjustble 50/60 Hz (E, Australian, Tourist model)

ACTIVE SPEAKER SYSTEM

SONY®

MODEL IDENTIFICATION
— Specification Label —



SA-S900	US, Canadian model	: 390-□□
	E, Tourist model	: 391-□□
SA-EX100	AEP model	: 393-□□
	UK, German model	: 394-□□
	E, Australian model	: 392-□□

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SAFETY CHECK-OUT
(US model only)

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:
Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.

2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.

3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

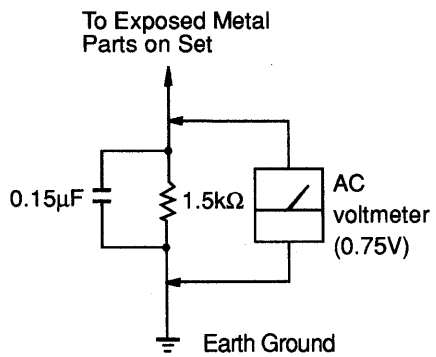


Fig. A. Using an AC voltmeter to check AC leakage.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

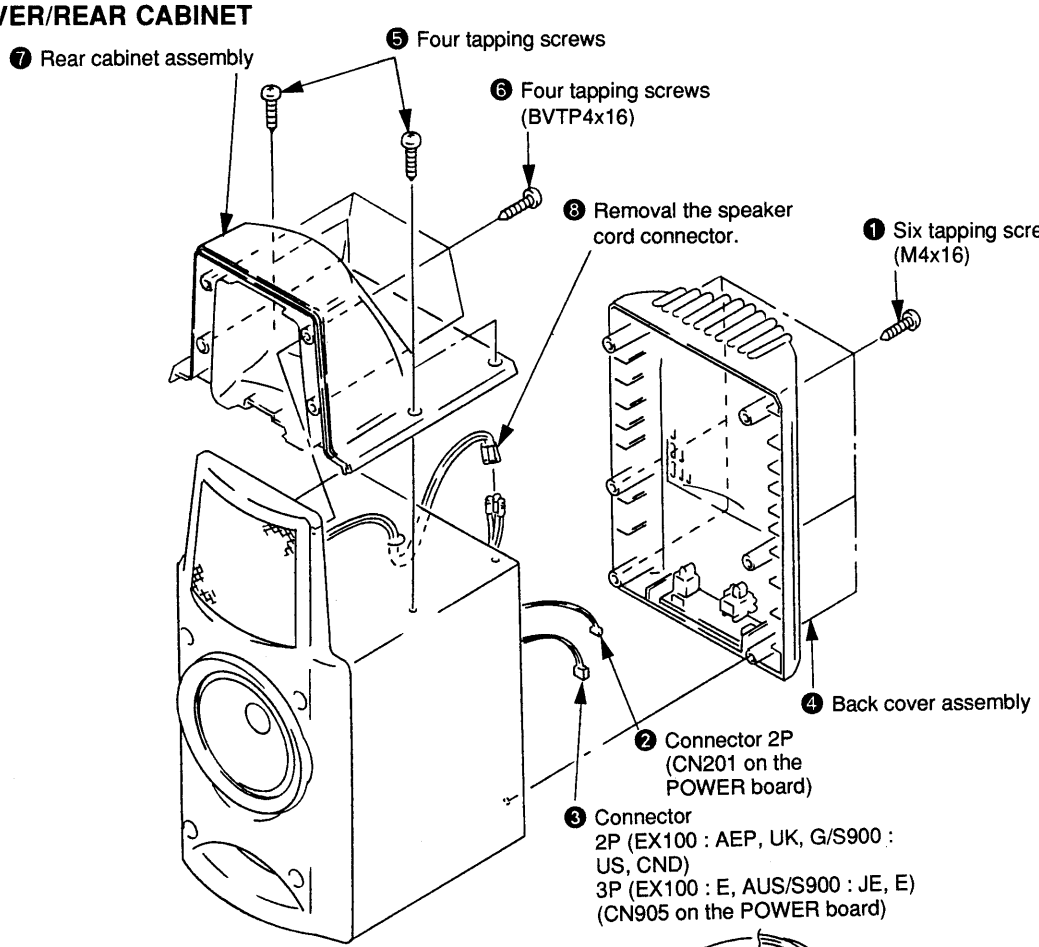
ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

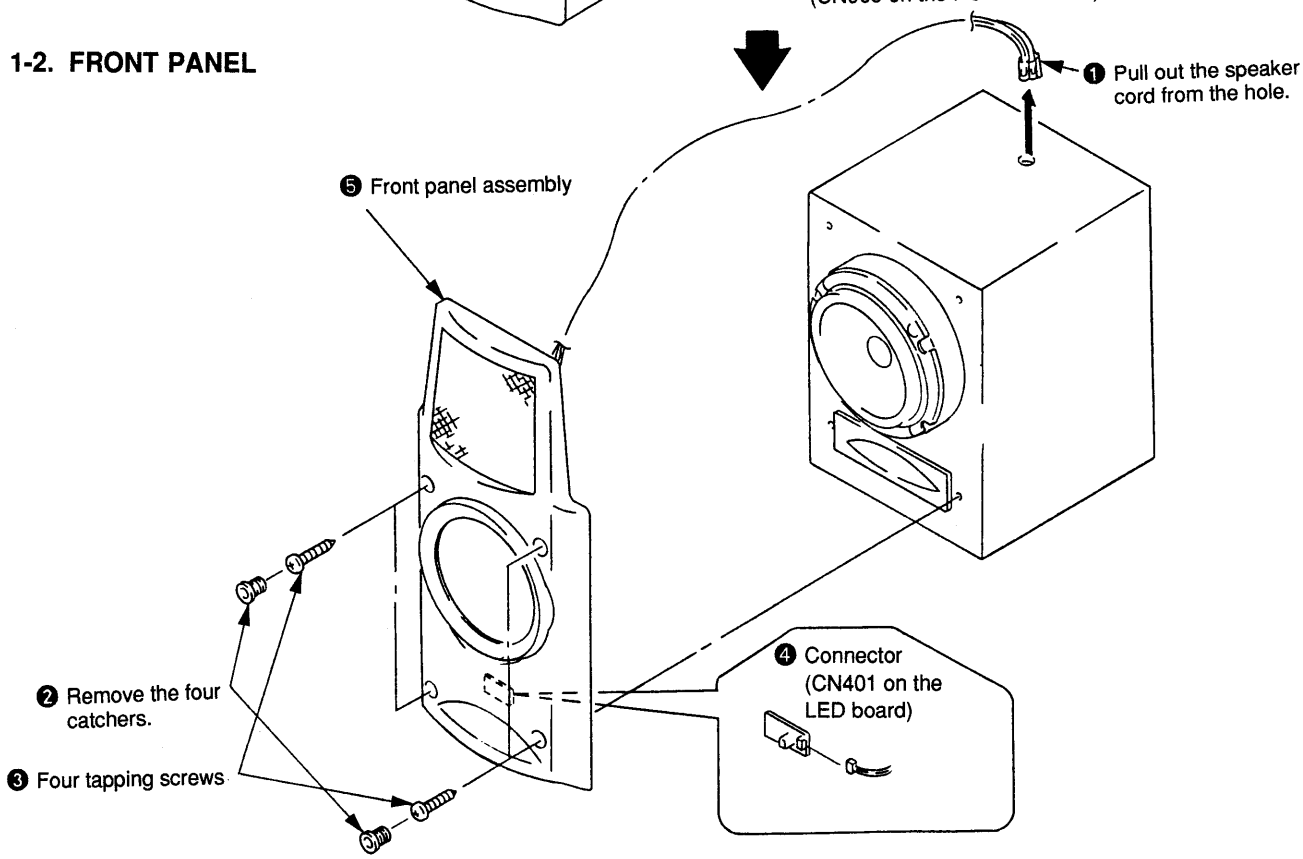
SECTION 1
DISASSEMBLY

Note : Follow the disassembly procedure in the number order given.

1-1. BACK COVER/REAR CABINET

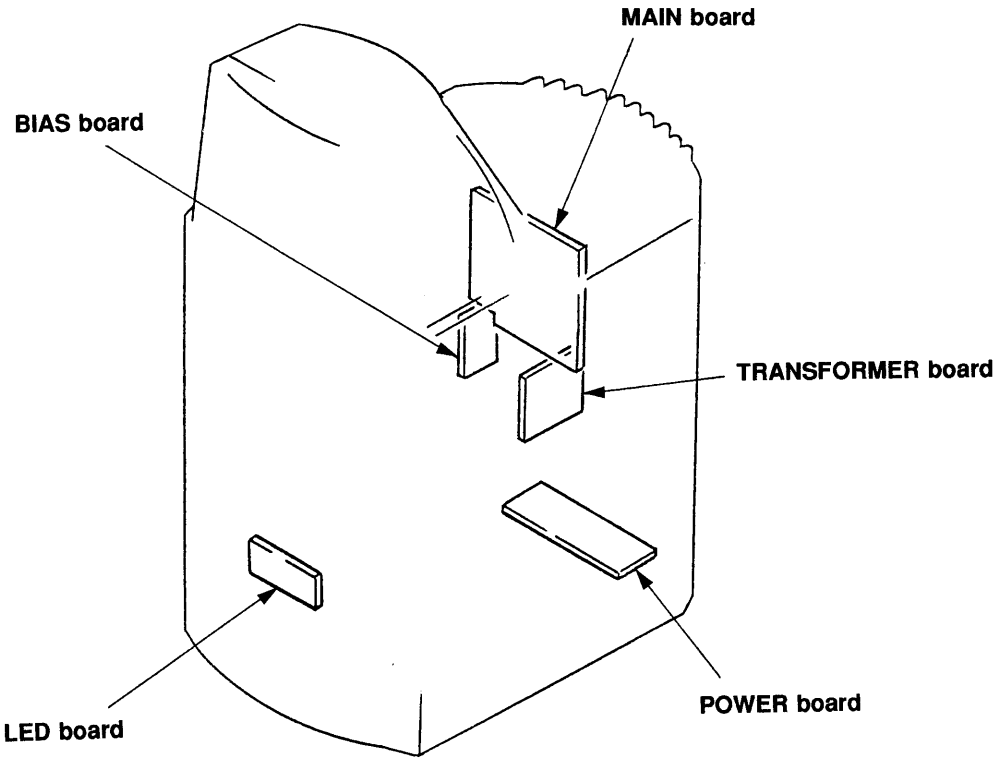

❼ Rear cabinet assembly
❺ Four tapping screws
❻ Four tapping screws (BVTP4x16)
❽ Removal the speaker cord connector.
❶ Six tapping screws (M4x16)
❹ Back cover assembly
❷ Connector 2P (CN201 on the POWER board)
❸ Connector 2P (EX100 : AEP, UK, G/S900 : US, CND) 3P (EX100 : E, AUS/S900 : JE, E) (CN905 on the POWER board)

1-2. FRONT PANEL


❶ Pull out the speaker cord from the hole.
❺ Front panel assembly
❹ Connector (CN401 on the LED board)
❷ Remove the four catchers.
❸ Four tapping screws

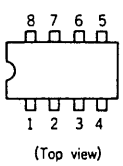
SECTION 2
DIAGRAMS

2-1. CIRCUIT BOARDS LOCATION

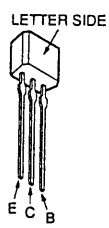


2-2. SEMICONDUCTOR LEAD LAYOUTS

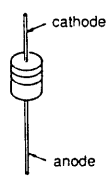
RC5532DD



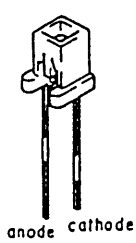
2SA1175-HFE



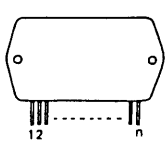
HZS16-2L



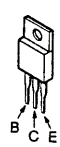
SEL3510C-CD



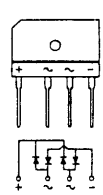
STK401-100B



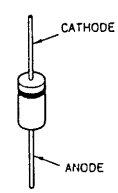
2SB1094-LK
2SD2012



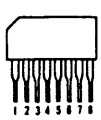
RBA-402



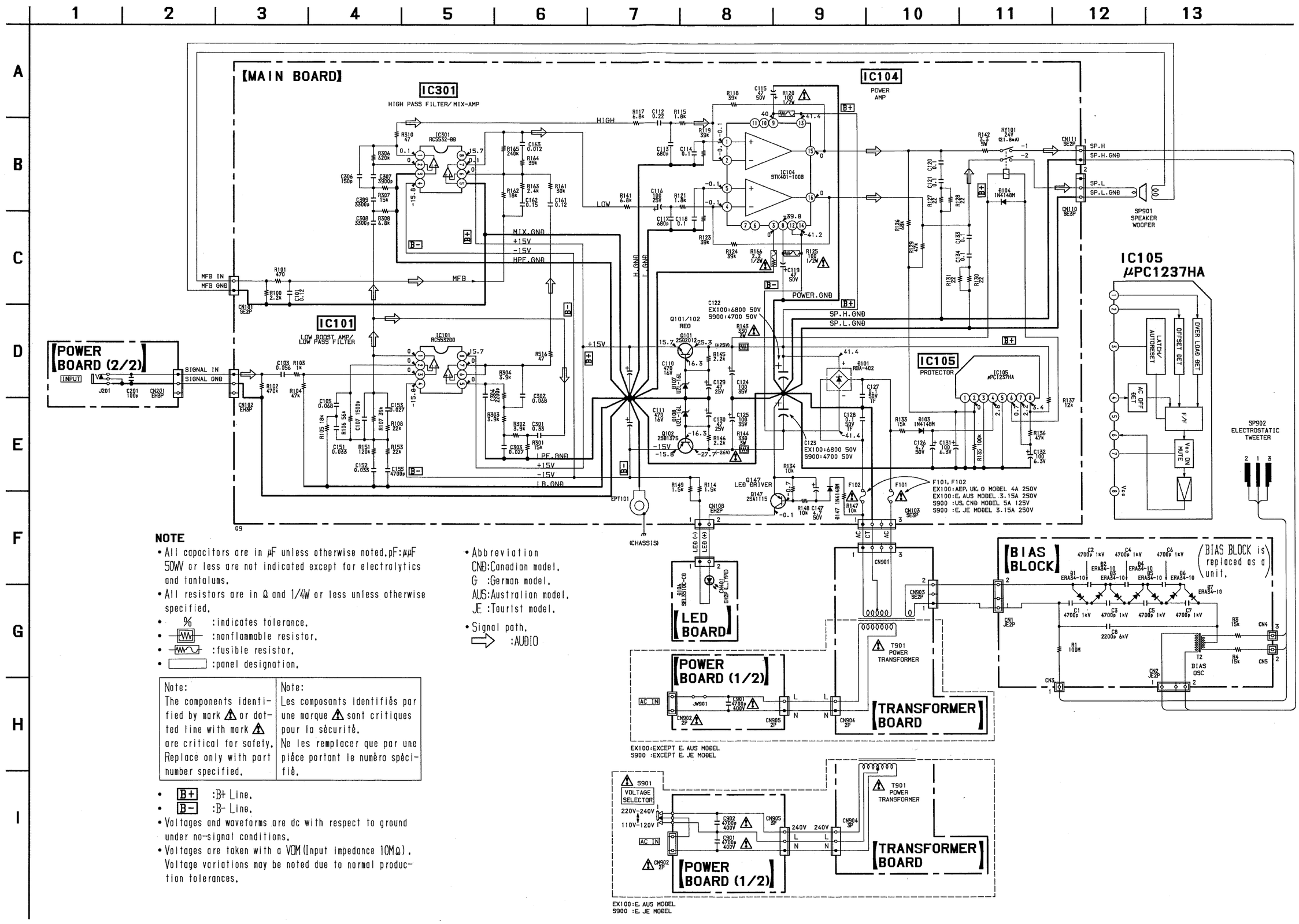
1N4148M



μPC1237HA



2-3. SCHEMATIC DIAGRAM



NOTE

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- % :indicates tolerance.
- :nonflammable resistor.
- :fusible resistor.
- :panel designation.

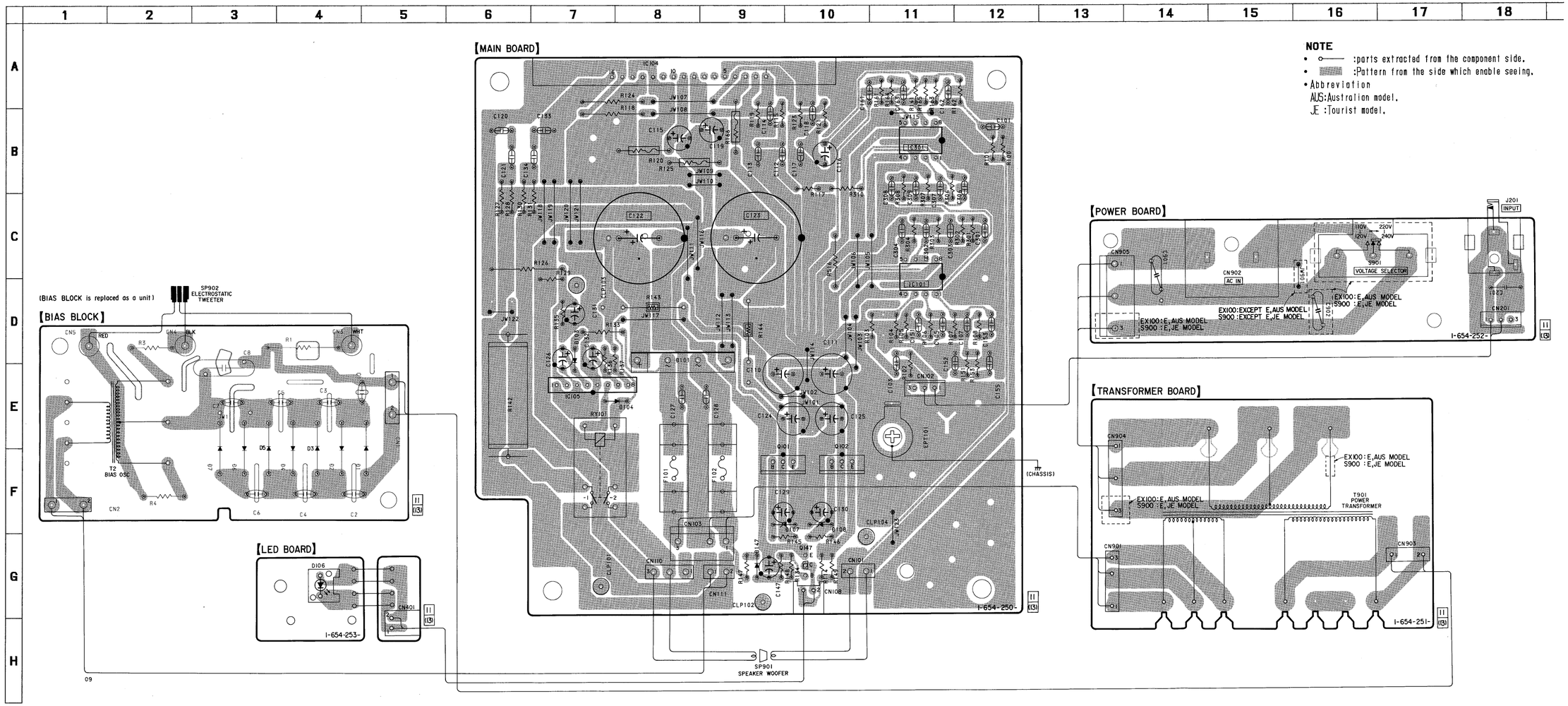
Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- B+ :B+ Line.
- B− :B− Line.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.

- Abbreviation
  CND: Canadian model.
  G : German model.
  AUS: Australian model.
  JE : Tourist model.
- Signal path.
  ⇨ :AUDIO

2-4. PRINTED WIRING BOARD

- See page 4 for Circuit Boards Location.
- See page 4 for Semiconductor Lead Layouts.



- Semiconductor Location

Ref. No.	Location
D101	E-8
D103	D-7
D104	E-8
D106	G-4
D107	G-9
D108	F-10
D147	G-9
IC101	D-11
IC104	A-7
IC105	E-7
IC301	B-11
Q101	F-9
Q102	F-10
Q147	G-10

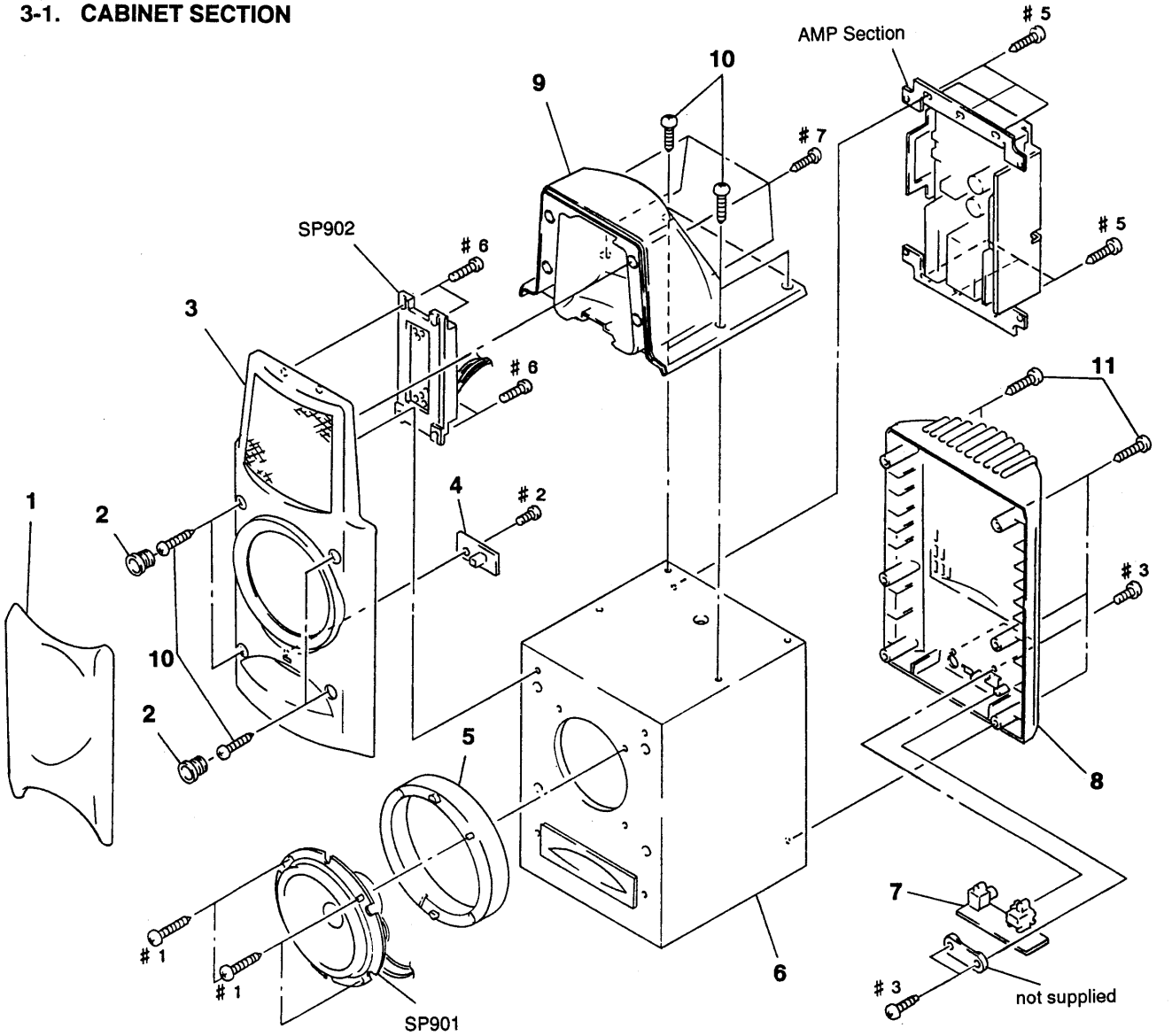
SECTION 3
EXPLODED VIEWS

NOTE:
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Abbreviation
  CND : Canadian model
  G : German model
  AUS : Australian model
  JE : Tourist model
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

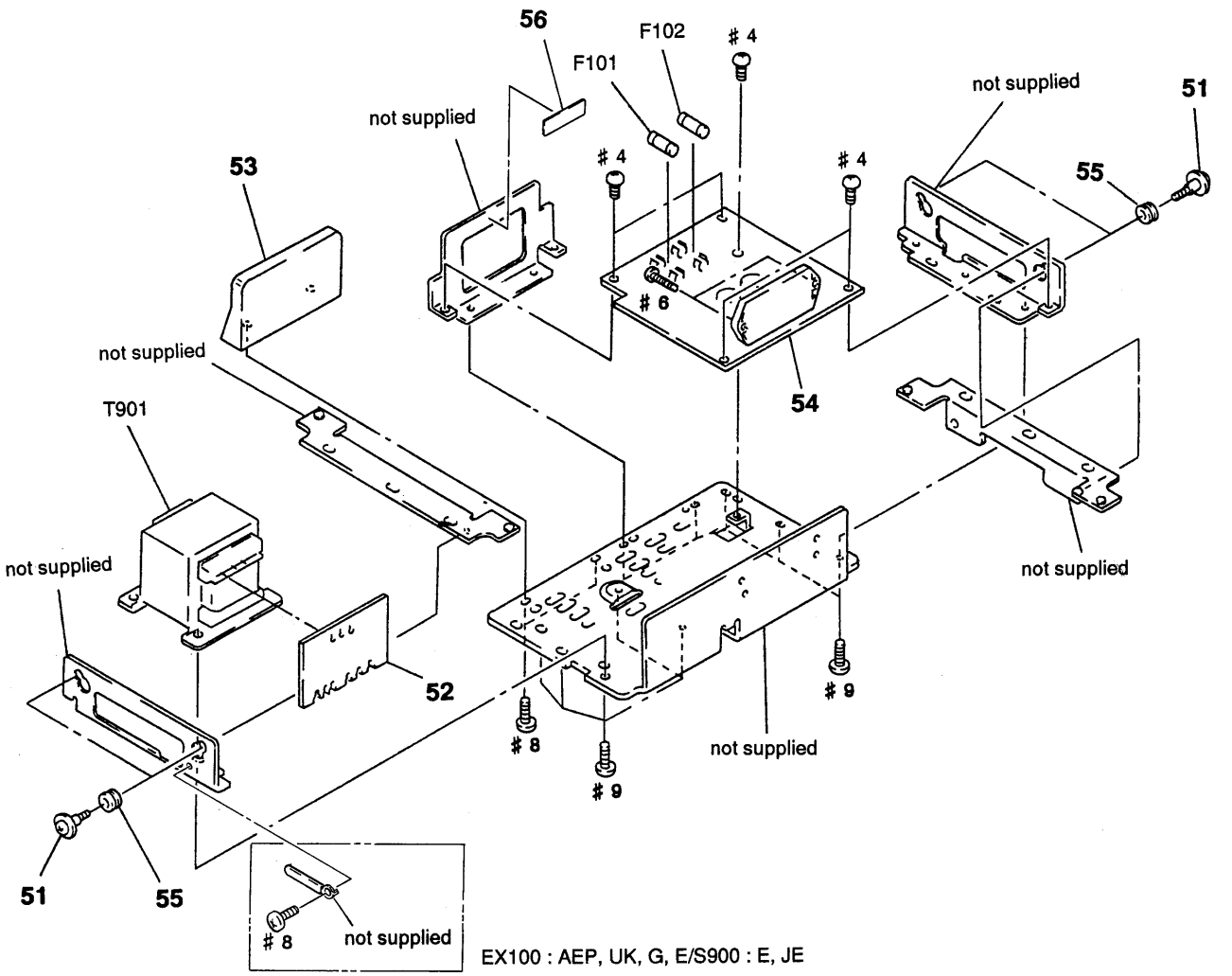
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

3-1. CABINET SECTION



Ref. No.	Part No.	Description	Remark
1	X-4945-291-1	FRAME ASSY, GRILLE	
2	4-912-253-01	CATCHER	
3	X-4945-290-1	PANEL ASSY, FRONT (EX100/S900:JE, E)	
3	X-4945-541-1	PANEL ASSY, FRONT (S900:US, CND)	
* 4	1-654-253-11	LED BOARD	
* 5	X-4945-293-1	RING ASSY, WOOFER	
* 6	A-4361-186-A	CABINET ASSY, SPEAKER (EXCEPT EX100:G)	
* 6	A-4361-310-A	CABINET ASSY, SPEAKER (EX100:G)	
* 7	1-654-252-11	POWER BOARD	
8	X-4945-731-1	COVER ASSY, BACK (EX100:AEP, UK, G)	
8	X-4945-860-1	COVER ASSY, BACK (S900:US, CND)	
8	X-4945-861-1	COVER ASSY, BACK (EX100:E, AUS/S900:JE, E)	
* 9	X-4945-292-1	CABINET ASSY, REAR (EX100/S900:JE, E)	
* 9	X-4945-542-1	CABINET ASSY, REAR (S900:US, CND)	
10	4-962-063-01	SCREW	
11	4-923-040-11	SCREW (4X16), TAPPING	
SP901	1-504-671-11	SPEAKER (WOOFER) (15cm)	
SP902	1-504-680-11	SPEAKER (TWEETER) (2. 2X10) (EX100/S900:JE, E)	
SP902	1-504-680-21	SPEAKER (TWEETER) (2. 2X10) (S900:US, CND)	

3-2. AMP SECTION



EX100 : AEP, UK, G, E/S900 : E, JE

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
51	4-959-869-01	SCREW (STEP) (M3X6)	
* 52	1-654-251-11	TRANSFORMER BOARD	
53	A-4361-196-A	BIAS BLOCK ASSY (EX100/S900:JE, E)	
53	A-4361-296-A	BIAS BLOCK ASSY (S900:US, CND)	
* 54	A-4377-583-A	MAIN BOARD, COMPLETE (EX100)	
* 54	A-4377-584-A	MAIN BOARD, COMPLETE (S900)	
* 55	4-941-563-01	BUSHING	
56	3-703-044-26	LABEL, CAUTION (S900:US, CND)	
⚠F101	1-532-237-00	FUSE, TIME LAG (3.15A 250V) (EX100:E, AUS/S900:JE, E)	
⚠F101	1-532-350-00	FUSE (4A 250V) (EX100:AEP, UK, G)	
⚠F101	1-533-420-11	FUSE, GLASS CYLINDRICAL (DIA. 5) (5A 125V) (S900:US, CND)	
⚠F102	1-532-237-00	FUSE, TIME LAG (3.15A 250V) (EX100:E, AUS/S900:JE, E)	
⚠F102	1-532-350-00	FUSE (4A 250V) (EX100:AEP, UK, G)	
⚠F102	1-533-420-11	FUSE, GLASS CYLINDRICAL (DIA. 5) (5A 125V) (S900:US, CND)	
⚠T901	1-427-744-11	TRANSFORMER, POWER (S900:US, CND)	
⚠T901	1-427-745-11	TRANSFORMER, POWER (EX100:AEP, UK, G)	
⚠T901	1-427-746-11	TRANSFORMER, POWER (EX100:E, AUS/S900:JE, E)	

LED MAIN

SECTION 4
ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Abbreviation
  CND : Canadian model
  G : German model
  AUS : Australian model
  JE : Tourist model

- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- SEMICONDUCTORS
  In each case, u: μ , for example:
  uA...: μA..., uPA...: μPA..., uPB...: μPB..., uPC...: μPC..., uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH

Ref.No.	Part No.	Description			Remark
*	1-654-253-11	LED BOARD			
		*********			
		< CONNECTOR >			
CN401	1-564-517-11	PLUG, CONNECTOR 2P			
		< DIODE >			
D106	8-719-018-46	DIODE SEL3510C-CD			
**********					
*	A-4377-583-A	MAIN BOARD, COMPLETE (EX100)			
		**********			
*	A-4377-584-A	MAIN BOARD, COMPLETE (S900)			
		**********			
	1-533-293-11	FUSE HOLDER			
		< CAPACITOR >			
C101	1-136-166-00	FILM	0.12uF	5% 50V	
C103	1-136-162-00	FILM	0.056uF	5% 50V	
C105	1-136-163-00	FILM	0.068uF	5% 50V	
C107	1-130-473-00	MYLAR	0.0015uF	5% 50V	
C110	1-126-012-11	ELECT	470uF	20% 16V	
C111	1-126-012-11	ELECT	470uF	20% 16V	
C112	1-136-169-00	FILM	0.22uF	5% 50V	
C113	1-130-469-00	MYLAR	680PF	5% 50V	
C114	1-136-165-00	FILM	0.1uF	5% 50V	
C115	1-124-910-11	ELECT	47uF	20% 50V	
C116	1-124-122-11	ELECT	100uF	20% 50V	(EX100)
C116	1-124-478-11	ELECT	100uF	20% 25V	(S900)
C117	1-130-469-00	MYLAR	680PF	5% 50V	
C118	1-136-165-00	FILM	0.1uF	5% 50V	
C119	1-124-910-11	ELECT	47uF	20% 50V	
C120	1-136-165-00	FILM	0.1uF	5% 50V	
C121	1-136-165-00	FILM	0.1uF	5% 50V	
C122	1-110-667-11	ELECT	6800uF	50V	(EX100)
C122	1-126-138-11	ELECT	4700uF	20% 50V	(S900)
C123	1-110-667-11	ELECT	6800uF	50V	(EX100)
C123	1-126-138-11	ELECT	4700uF	20% 50V	(S900)
C124	1-124-122-11	ELECT	100uF	20% 50V	
C125	1-124-122-11	ELECT	100uF	20% 50V	
C126	1-124-927-11	ELECT	4.7uF	20% 100V	
C127	1-136-165-00	FILM	0.1uF	5% 50V	
C128	1-136-165-00	FILM	0.1uF	5% 50V	
C129	1-124-910-11	ELECT	47uF	20% 50V	
C130	1-124-910-11	ELECT	47uF	20% 50V	
C131	1-124-443-00	ELECT	100uF	20% 10V	
C132	1-124-443-00	ELECT	100uF	20% 10V	
C133	1-136-165-00	FILM	0.1uF	5% 50V	
C134	1-136-165-00	FILM	0.1uF	5% 50V	
C147	1-124-927-11	ELECT	4.7uF	20% 100V	
C151	1-136-159-00	FILM	0.033uF	5% 50V	
C152	1-136-159-00	FILM	0.033uF	5% 50V	
C153	1-130-488-00	MYLAR	0.027uF	5% 50V	
C155	1-130-479-00	MYLAR	0.0047uF	5% 50V	
C161	1-136-166-00	FILM	0.12uF	5% 50V	
C162	1-136-167-00	FILM	0.15uF	5% 50V	
C163	1-130-484-00	MYLAR	0.012uF	5% 50V	
C301	1-136-171-00	FILM	0.33uF	5% 50V	
C302	1-136-163-00	FILM	0.068uF	5% 50V	
C303	1-130-488-00	MYLAR	0.027uF	5% 50V	
C304	1-130-475-00	MYLAR	0.0022uF	5% 50V	
C306	1-110-337-51	MYLAR	150PF	5% 50V	
C307	1-130-478-00	MYLAR	0.0039uF	5% 50V	
C308	1-130-477-00	MYLAR	0.0033uF	5% 50V	
C309	1-130-477-00	MYLAR	0.0033uF	5% 50V	
		< CONNECTOR >			
CN101	1-566-693-11	PIN, CONNECTOR 2P			
CN102	1-564-506-11	PLUG, CONNECTOR 3P			
CN103	1-565-395-11	PIN, CONNECTOR 3P			
CN108	1-564-517-11	PLUG, CONNECTOR 2P			
CN110	1-564-214-11	PIN, CONNECTOR 3P			
CN111	1-566-693-11	PIN, CONNECTOR 2P			
		< DIODE >			
D101	8-719-312-09	DIODE RBA-402			
D103	8-719-987-63	DIODE 1N4148M			
D104	8-719-987-63	DIODE 1N4148M			
D107	8-719-933-88	DIODE HZS16-2L			
D108	8-719-933-88	DIODE HZS16-2L			
D147	8-719-987-63	DIODE 1N4148M			

Ref.No.	Part No.	Description				Remark
		< GROUND PLATE >				
* EPT101	4-870-539-00	PLATE, GROUND				
		< FUSE >				
⚠F101	1-532-237-00	FUSE, TIME LAG (3.15A 250V) (EX100:E, AUS/S900:E, JE)				
⚠F101	1-532-350-00	FUSE, (4A 250V) (EX100:AEP, UK, G)				
⚠F101	1-533-420-11	FUSE, GLASS CYLINDRICAL (DIA.5) (5A 125V) (S900:US, CND)				
⚠F102	1-532-237-00	FUSE, TIME LAG (3.15A 250V) (EX100:E, AUS/S900:E, JE)				
⚠F102	1-532-350-00	FUSE, (4A 250V) (EX100:AEP, UK, G)				
⚠F102	1-533-420-11	FUSE, GLASS CYLINDRICAL (DIA.5) (5A 125V) (S900:US, CND)				
		< IC >				
IC101	8-759-982-03	IC RC5532DD				
IC104	8-749-924-68	IC STK401-100B				
IC105	8-759-111-68	IC uPC1237HA				
IC301	8-759-982-03	IC RC5532DD				
		< TRANSISTOR >				
Q101	8-729-209-15	TRANSISTOR 2SD2012				
Q102	8-729-141-83	TRANSISTOR 2SB1094-LK				
Q147	8-729-119-76	TRANSISTOR 2SA1175-HFE				
		< RESISTOR >				
R100	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R101	1-249-413-11	CARBON	470	5%	1/4W	F
R102	1-247-895-00	CARBON	470K	5%	1/4W	
R103	1-249-417-11	CARBON	1K	5%	1/4W	F
R104	1-249-437-11	CARBON	47K	5%	1/4W	
R105	1-249-432-11	CARBON	18K	5%	1/4W	
R106	1-249-438-11	CARBON	56K	5%	1/4W	
R107	1-249-436-11	CARBON	39K	5%	1/4W	
R108	1-249-433-11	CARBON	22K	5%	1/4W	
R114	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R115	1-249-420-11	CARBON	1.8K	5%	1/4W	F
R117	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R118	1-249-436-11	CARBON	39K	5%	1/4W	
R119	1-249-436-11	CARBON	39K	5%	1/4W	
⚠R120	1-212-982-00	FUSIBLE	100	5%	1/2W	F
R121	1-249-420-11	CARBON	1.8K	5%	1/4W	F
R123	1-249-436-11	CARBON	39K	5%	1/4W	
R124	1-249-436-11	CARBON	39K	5%	1/4W	
⚠R125	1-212-982-00	FUSIBLE	100	5%	1/2W	F
R126	1-249-439-11	CARBON	68K	5%	1/4W	
R127	1-249-397-11	CARBON	22	5%	1/4W	F
R128	1-249-397-11	CARBON	22	5%	1/4W	F
R129	1-249-437-11	CARBON	47K	5%	1/4W	
R130	1-249-397-11	CARBON	22	5%	1/4W	F
R131	1-249-397-11	CARBON	22	5%	1/4W	F
R133	1-249-431-11	CARBON	15K	5%	1/4W	
R134	1-249-429-11	CARBON	10K	5%	1/4W	
R135	1-249-441-11	CARBON	100K	5%	1/4W	
R136	1-249-437-11	CARBON	47K	5%	1/4W	
R137	1-249-430-11	CARBON	12K	5%	1/4W	
R141	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R142	1-208-960-11	METAL PLATE	3.3		5W	
⚠R143	1-215-914-11	METAL OXIDE	330	5%	3W	F
⚠R144	1-215-914-11	METAL OXIDE	330	5%	3W	F
R145	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R146	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R147	1-249-429-11	CARBON	10K	5%	1/4W	
R148	1-249-429-11	CARBON	10K	5%	1/4W	
R149	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R151	1-247-881-00	CARBON	120K	5%	1/4W	
R153	1-247-862-11	CARBON	20K	5%	1/4W	
R161	1-247-866-11	CARBON	30K	5%	1/4W	
R162	1-249-432-11	CARBON	18K	5%	1/4W	
R163	1-247-840-00	CARBON	2.4K	5%	1/4W	
R164	1-249-436-11	CARBON	39K	5%	1/4W	
R165	1-247-888-11	CARBON	240K	5%	1/4W	
⚠R166	1-212-942-00	FUSIBLE	2.2	5%	1/2W	F
R301	1-249-431-11	CARBON	15K	5%	1/4W	
R302	1-249-424-11	CARBON	3.9K	5%	1/4W	F
R303	1-249-424-11	CARBON	3.9K	5%	1/4W	F
R304	1-249-424-11	CARBON	3.9K	5%	1/4W	F
R306	1-247-898-11	CARBON	620K	5%	1/4W	
R307	1-249-431-11	CARBON	15K	5%	1/4W	
R308	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R310	1-249-401-11	CARBON	47	5%	1/4W	F
R516	1-249-401-11	CARBON	47	5%	1/4W	F
		< RELAY >				
RY101	1-515-920-11	RELAY (24V)				
**********						
*	1-654-252-11	POWER BOARD **********				
		< CAPACITOR >				
C201	1-162-282-31	CERAMIC	100PF	10%	50V	
⚠C901	1-161-743-00	CERAMIC	0.0047uF		400V	
⚠C902	1-161-743-00	CERAMIC	0.0047uF		400V (EX100:E, AUS/S900:E, JE)	
		< CONNECTOR >				
CN201	1-564-506-11	PLUG, CONNECTOR 3P				

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POWER TRANSFORMER

Ref. No.	Part No.	Description	Remark
⚠CN902	1-526-930-11	INLET, AC (AC IN) (S900)	
⚠CN902	1-526-931-11	INLET, AC (AC IN) (EX100)	
CN905	1-564-321-00	PIN, CONNECTOR 2P (EX100:AEP, UK, G/S900:US, CND)	
CN905	1-564-687-11	PIN, CONNECTOR 3P (EX100:E, AUS/S900:E, JE)	
		< JACK >	
J201	1-750-969-11	JACK, PIN (INPUT)	
		< SWITCH >	
⚠S901	1-572-675-11	SWITCH, POWER VOLTAGE CHANGE (VOLTAGE SELECTOR) (EX100:E, AUS/S900:E, JE)	
**********			
*	1-654-251-11	TRANSFORMER BOARD **********	
		< CONNECTOR >	
CN903	1-568-226-11	PIN, CONNECTOR 2P	
CN904	1-769-292-31	LEAD (WITH CONNECTOR) (3 CORE) (EX100:E, AUS/S900:E, JE)	
CN904	1-690-123-31	REED (WITH CONNECTOR) (2 CORE) (EX100:AEP, UK, G/S900:US, CND)	
		< TRANSFORMER >	
⚠T901	1-427-744-11	TRANSFORMER, POWER (S900:US, CND)	
⚠T901	1-427-745-11	TRANSFORMER, POWER (EX100:AEP, UK, G)	
⚠T901	1-427-746-11	TRANSFORMER, POWER (EX100:E, AUS/S900:E, JE)	
**********			
		MISCELLANEOUS **********	
⚠F101	1-532-237-00	FUSE, TIME LAG (3.15A 250V) (EX100:E, AUS/S900:E, JE)	
⚠F101	1-532-350-00	FUSE (4A 250V) (EX100:AEP, UK, G)	
⚠F101	1-533-420-11	FUSE, GLASS CYLINDRICAL (DIA. 5) (5A 125V) (S900:US, CND)	
⚠F102	1-532-237-00	FUSE, TIME LAG (3.15A 250V) (EX100:E, AUS/S900:E, JE)	
⚠F102	1-532-350-00	FUSE (4A 250V) (EX100:AEP, UK, G)	
⚠F102	1-533-420-11	FUSE, GLASS CYLINDRICAL (DIA. 5) (5A 125V) (S900:US, CND)	
SP901	1-504-671-11	SPEAKER (WOOFER) (15cm)	
SP902	1-504-680-11	SPEAKER (TWEETER) (2.2X10) (EX100/S900:E, JE)	
SP902	1-504-680-21	SPEAKER (TWEETER) (2.2X10) (S900:US, CND)	
⚠T901	1-427-744-11	TRANSFORMER, POWER (S900:US, CND)	
⚠T901	1-427-745-11	TRANSFORMER, POWER (EX100:AEP, UK, G)	
⚠T901	1-427-746-11	TRANSFORMER, POWER (EX100:E, AUS/S900:E, JE)	
**********			
		ACCESSORIES & PACKING MATERIALS **********	
⚠	1-575-706-31	CORD, POWER (S900:US, CND)	
⚠	1-765-293-11	CORD, POWER (EX100:AEP, E, G, AUS)	
⚠	1-769-312-11	CORD, POWER (EX100:UK)	
	1-769-329-11	CORD, CONNECTION (PIN-PIN) (2.5m)	
⚠	1-769-459-11	CORD, POWER (S900:E, JE)	
	3-701-940-01	LABEL, BEAB (EX100:UK)	
	3-798-348-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH, PORTUGUESE, GERMAN, DUTCH, SWEDISH, ITALIAN, CHINESE, KOREAN, ARABIC)	
*	4-971-160-01	CUSHION (UPPER)	
*	4-971-161-01	CUSHION (LOWER)	
*	4-972-595-01	INDIVIDUAL CARTON (EX100:AEP, UK, G, AUS)	
*	4-972-596-01	INDIVIDUAL CARTON (EX100:E)	
*	4-973-623-01	INDIVIDUAL CARTON (S900:US, CND)	
*	4-973-624-01	INDIVIDUAL CARTON (S900:JE)	
*	4-973-625-01	INDIVIDUAL CARTON (S900:E)	
**********			
		********** HARDWARE LIST **********	
#1	7-621-849-50	SCREW, WOOD +R 4.1X40	
#2	7-685-134-19	SCREW +P 2.6X8 TYPE2 NON-SLIT	
#3	7-685-147-19	SCREW +P 3X10 TYPE2 NON-SLIT	
#4	7-682-548-04	SCREW +BVTT 3X8 (S)	
#5	7-685-163-01	SCREW +P 4X16 TYPE1	
#6	7-685-650-79	SCREW +BVTP 3X16 TYPE2 IT-3	
#7	7-685-663-79	SCREW +BVTP 4X16 TYPE2 IT-3	
#8	7-685-647-79	SCREW +BVTP 3X10 TYPE2 IT-3	
#9	7-682-549-04	SCREW +BVTT 3X10 (S)	

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9-959-953-11

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Consumer A&V Products Company
Home A&V Products Div.

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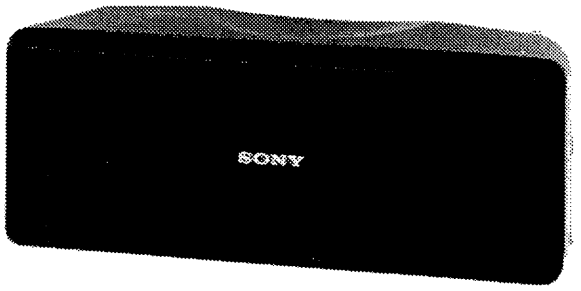
Quality Engineering Dept.

SS-CN14

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model
E Model
Australian Model
Tourist Model



This is a speaker system in
MHC-EX70AV/EX100AV/W77AV.

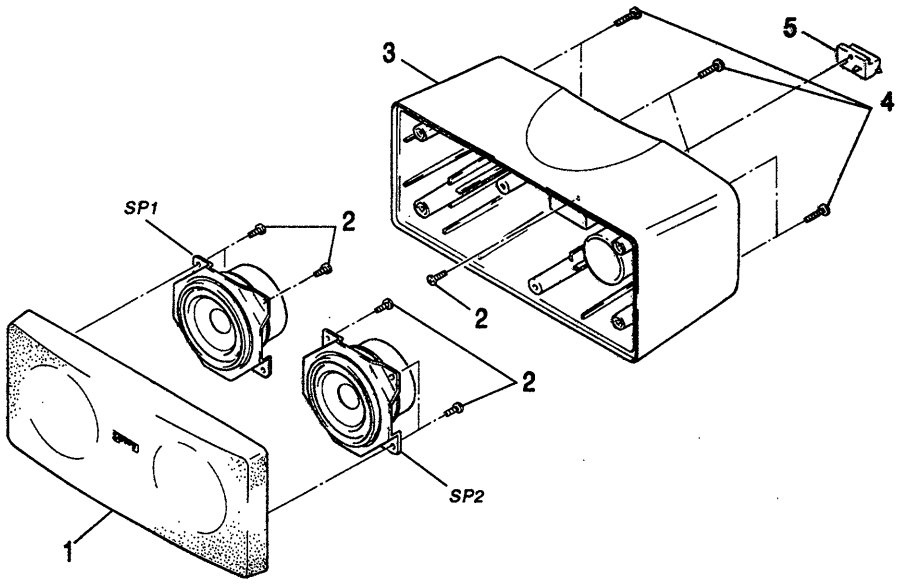
SPECIFICATIONS

Speaker system
  Full range × 2,magnetically shielded
Speaker unit
  8 cm (3 1/4 inches cone type)
Enclosure type
  Bass reflex
Rated impedance
  8 ohms
Power handling capacity
  Maximum input power: 120 W
Sensitivity
  89 dB (1W, 1m)
Frequency range
  85 - 20,000 Hz
Dimensions
  Approx. 280 × 110 × 140 mm (11 1/8 × 4 3/8 × 5 5/8) (w/h/d) including front grille
Mass
  Approx. 1.7 kg
Supplied accessory
  Speaker cord 2.5 m (1)
  Foot (4)

SPEAKER SYSTEM

SONY®

EXPLODED VIEW



Ref. No.	Part No.	Description	Remark
1	X-4947-268-1	PANEL ASSY, FRONT	
2	7-685-659-79	SCREW +BVTP 4X8, TYPE2	
3	X-4945-757-1	CABINET ASSY, FRONT	
4	4-929-125-01	SCREW (M4X16), TAPPING	
5	1-537-775-11	TERMINAL BOARD	
SP1	1-505-313-11	SPEAKER (8CM)	
SP2	1-505-313-11	SPEAKER (8CM)	

9-960-604-11

Sony Corporation
Consumer A&V Products Company
Home A&V Products Div.

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Quality Engineering Dept.

SS-CN12/CN15/CR150/SR12/SR15

SERVICE MANUAL

US Model
Canadian Model
SS-CR150

AEP Model
UK Model
SS-CN15/CR150/SR15

E Model
SS-CN12/CN15/CR150/
SR12/SR15

Australian Model
SS-CN12/SR12

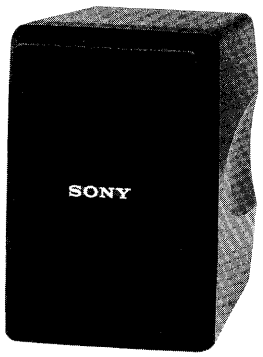


Photo : SS-SR12/SR15

Photo : SS-CN12/CN15

SS-CN12 and SS-SR12 are speaker system in LBT-N600AV.

SS-CR150 is composed for following model.

COMPONENT MODEL NAME FOR THESE SYSTEM

	SS-CR150
Center Speaker	SS-CN15
Surround Speaker	SS-SR15

SPECIFICATIONS

[SS-CN12]

Speaker system
Full range × 1,magnetically shielded
Speaker unit
8 cm (3 1/4 inches cone type)
Enclosure type
Bass reflex
Rated impedance
8 ohms
Power handling capacity
Maximum input power:70W
Sensitivity
88 dB (1W, 1m)
Frequency range
95 - 20,000 Hz
Dimensions
Approx. 280 × 110 × 140 mm (11 1/8 × 4 3/8 × 5 5/8) (w/h/d) including front grille
Mass
Approx. 1.2 kg
Supplied accessory
Speaker cord 2.5 m (1)
Foot (4)

[SS-CN15]

Speaker system
Full range × 2,magnetically shielded
Speaker unit
8 cm (3 1/4 inches cone type)
Enclosure type
Bass reflex
Rated impedance
8 ohms
Power handling capacity
Maximum input power: 120 W
Sensitivity
89 dB (1W, 1m)
Frequency range
85 - 20,000 Hz
Dimensions
Approx. 280 × 110 × 140 mm (11 1/8 × 4 3/8 × 5 5/8) (w/h/d) including front grille
Mass
Approx. 1.7 kg
Supplied accessory
Speaker cord 2.5 m (1)
Foot (4)

[SS-SR12/SR15]

Speaker system
Full range
Speaker unit
8 cm (3 1/4 inches cone type)
Enclosure type
Bass reflex
Rated impedance
8 ohms
Power handling capacity
Maximum input power: 70W
Sensitivity
87 dB (1W, 1m)
Frequency range
SS-SR12 : 95-20,000Hz
SS-SR15 : 85-20,000Hz
Dimensions
Approx. 110 × 160 × 140 mm (4 3/8 × 6 3/8 × 5 5/8 inches) (w/h/d) including front grille
Mass
Approx. 740 g / pc
Supplied accessory
Speaker cord 10 m (2)

Design and specifications are subject to change without notice.

SPEAKER SYSTEM

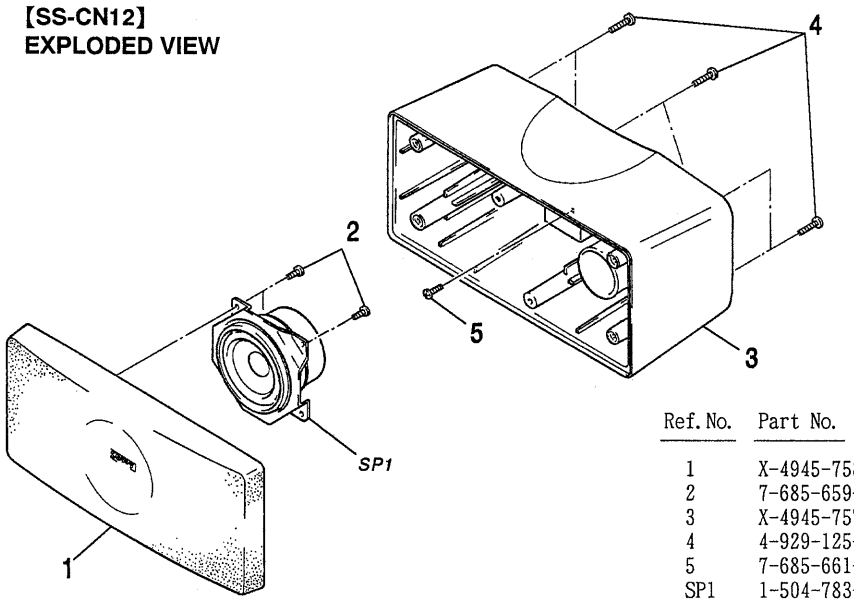
SONY®

[SS-CR150]
PARTS LIST

- Items marked " * "are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

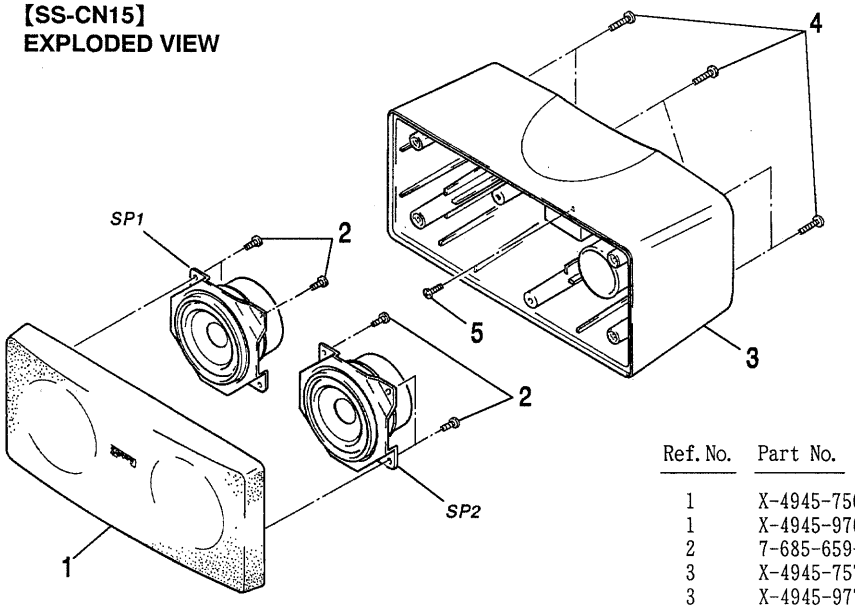
Ref. No.	Part No.	Description	Remark
	1-769-433-11	CORD, SPEAKER	
	3-798-171-01	MANUAL INSTRUCTION (ENGLISH)	
	4-972-322-01	FOOT (Y)	

[SS-CN12]
EXPLODED VIEW



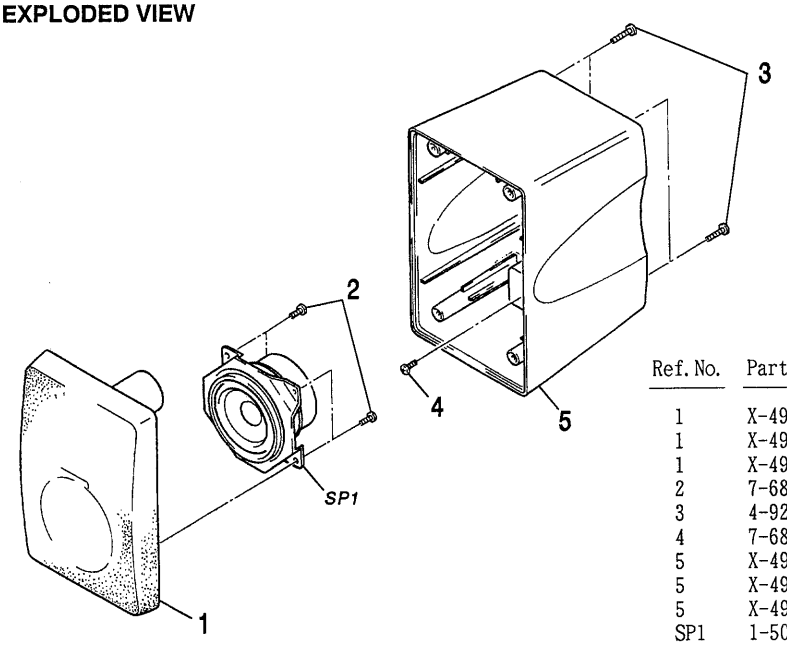
Ref. No.	Part No.	Description	Remark
1	X-4945-758-1	PANEL ASSY, FRONT	
2	7-685-659-79	SCREW +BVTP 4X8, TYPE2	
3	X-4945-757-1	CABINET ASSY, FRONT	
4	4-929-125-01	SCREW (M4X16), TAPPING	
5	7-685-661-79	SCREW +BVTP 4X12, TYPE2	
SP1	1-504-783-11	SPEAKER (8CM)	

[SS-CN15]
EXPLODED VIEW



Ref. No.	Part No.	Description	Remark
1	X-4945-756-1	PANEL ASSY, FRONT (AEP, UK, E)	
1	X-4945-976-1	PANEL ASSY, FRONT (US, Canadian)	
2	7-685-659-79	SCREW +BVTP 4X8, TYPE2	
3	X-4945-757-1	CABINET ASSY, FRONT (AEP, UK, E)	
3	X-4945-977-1	CABINET ASSY, FRONT (US, Canadian)	
4	4-929-125-01	SCREW (M4X16), TAPPING	
5	7-685-661-79	SCREW +BVTP 4X12, TYPE2	
SP1, 2	1-504-782-11	SPEAKER (8CM)	

[SS-SR12/SR15]
EXPLODED VIEW



Ref. No.	Part No.	Description	Remark
1	X-4945-746-1	PANEL ASSY, FRONT (SR12)	(E, Australian)
1	X-4945-746-1	PANEL ASSY, FRONT (SR15)	(AEP, UK, E)
1	X-4945-978-1	PANEL ASSY, FRONT (SR15)	(US, Canadian)
2	7-685-659-79	SCREW +BVTP 4X8, TYPE2	
3	4-929-125-01	SCREW (M4X6), TAPPING	
4	7-685-661-79	SCREW +BVTP 4X8, TYPE2	
5	X-4945-747-1	CABINET ASSY, FRONT (SR12)	(E, Australian)
5	X-4945-747-1	CABINET ASSY, FRONT (SR15)	(AEP, UK, E)
5	X-4945-979-1	CABINET ASSY, FRONT (SR15)	(US, Canadian)
SP1	1-504-780-11	SPEAKER (8CM)	

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